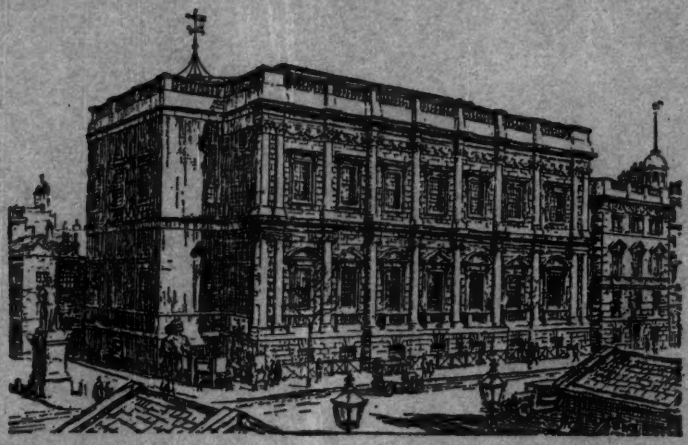
NOVEMBER 1941

# JOURNAL



## Royal United Service Institution

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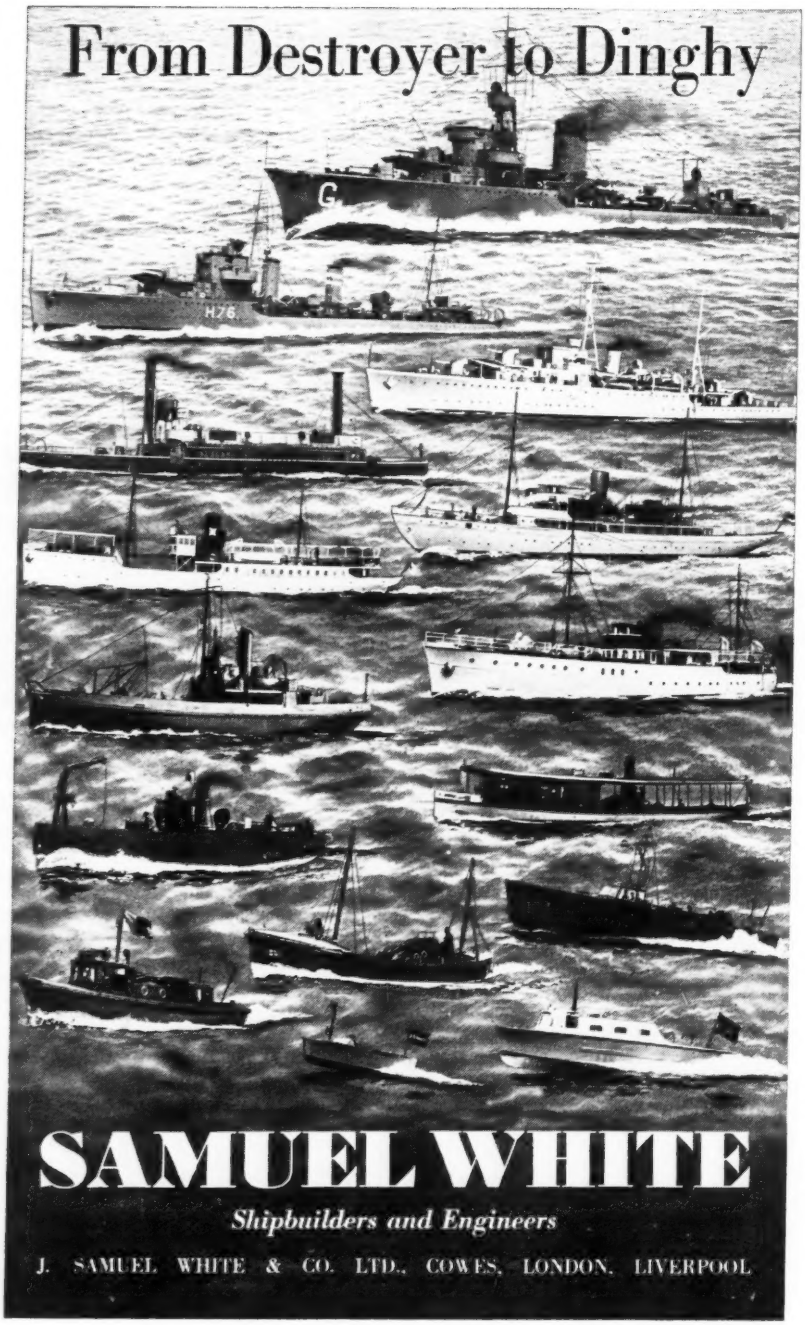

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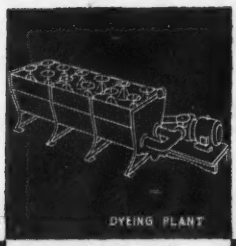



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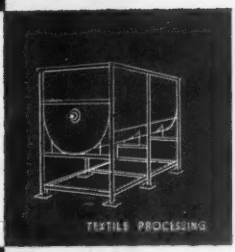
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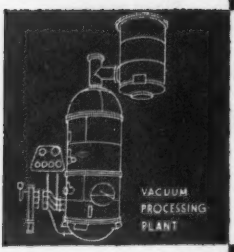
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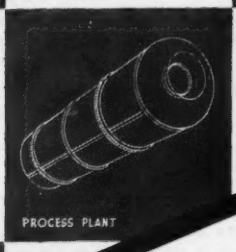

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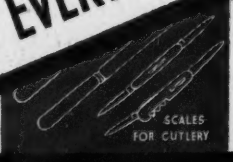

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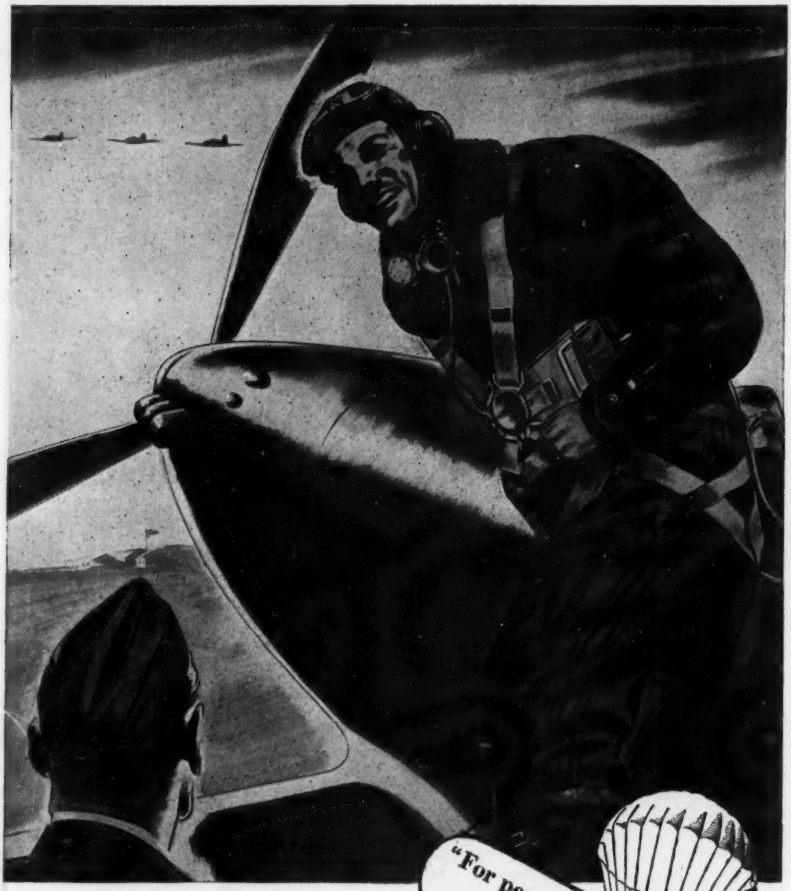

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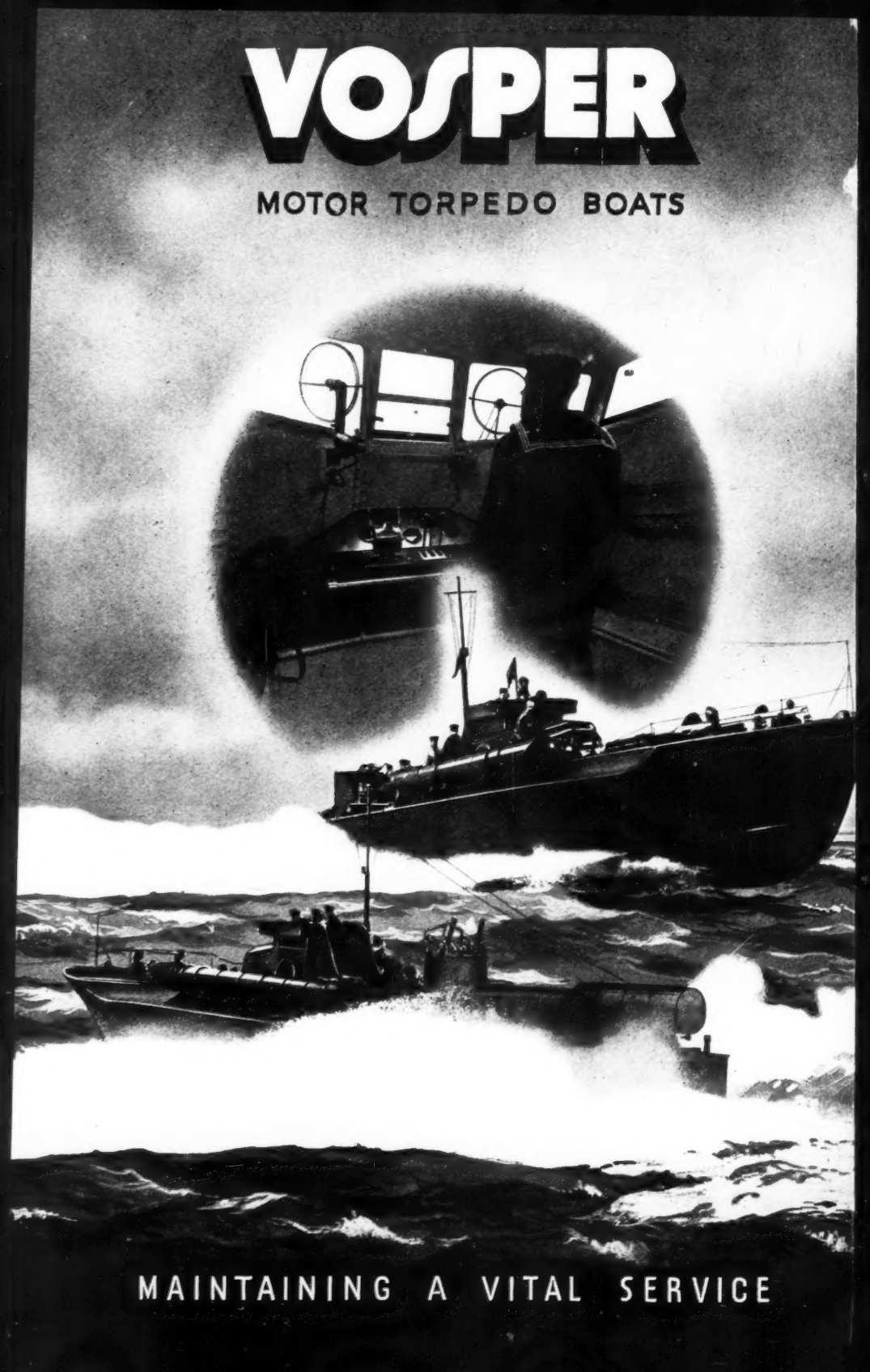
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# CONTENTS FOR NOVEMBER, 1941


| | Page |
|---|---|
| Secretary's Notes ... ... ... ... ... ... ... ... .. ... | v |
| Frontispiece : H.M. The King Inspecting the 3rd Canadian Division. | |
| Canada's War Effort ... ... ... ... ... ... ... ... ... ... | 643 |
| The Two Faces of Germany. By Lieut.-Colonel H. de Watteville, C.B.E., late R.A. ... | 646 |
| The Industrial Population of Great Britain and the War. By Captain R. H. Bright, *p.a.c.*, Royal Tank Regiment ... ... ... ... ... ... ... ... ... | 657 |
| U.S. Naval Recruitment and Training. By Edward P. Montgomery ... ... ... | 667 |
| Aircraft Production in the United States. By E. Speyer ... ... ... ... ... | 674 |
| The American Shipping Effort ... ... ... ... ... ... ... ... ... | 682 |
| Australia and Japan. By Donald Cowie ... ... ... ... ... ... ... | 687 |
| Hygiene and the March. By Major Frederic Evans, M.B.E., R.A.M.C. ... ... ... | 694 |
| Ocean Air Transport ... ... ... ... ... ... ... ... ... ... | 703 |
| Welfare in the Royal Navy. By Captain W. R. Blacklock, D.S.O., R.N. ... ... ... | 724 |
| International Situation : | |
| War on Two Fronts ... ... ... ... ... ... ... ... ... | 730 |
| Diary of the War ... ... ... ... ... ... ... ... ... ... ... | 733 |
| Correspondence ... ... ... ... ... ... ... ... ... ... ... | 807 |
| General Service Notes ... ... ... ... ... ... ... ... ... ... | 811 |
| Navy Notes ... ... ... ... ... ... ... ... ... ... ... | 812 |
| Army Notes ... ... ... ... ... ... ... ... ... ... ... | 820 |
| Air Notes ... ... ... ... ... ... ... ... ... ... ... | 833 |
| Reviews of Books ... ... ... ... ... ... ... ... ... ... | 842 |
| Additions to the Library ... ... ... ... ... ... ... ... ... | 844 |
| Index ... ... ... ... ... ... ... ... ... ... ... ... | i |


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of the

# Royal United Service Institution

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Naval, Military and Air Force Cadets are eligible on the recommendation of their Commanding Officers.

Gentlemen enrolled in establishments which imply that they will be given commissions in time of national emergency are eligible for membership by ballot of the Council.

An Officers' Mess may subscribe to the JOURNAL, but is *not* eligible for membership.

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The Institution is open daily from 10 a.m. to 7 p.m., except Sunday, Christmas Day and Good Friday.

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The R.U.S.I. JOURNAL is published in February, May, August and November of each year, and sent post free to Members in any part of the world. Copies may be purchased by non-members, price 7s. 6d.

## THE MUSEUM

The R.U.S. Museum is closed for the duration of the War.

## THE THEATRE

The Lecture Theatre is at present devoted to a Special Exhibition representing "The Fighting Services in the Present War."

# SECRETARY'S NOTES

*November*, 1941.

## COUNCIL

### Elected Members

Commodore H. Stockwell, C.B., D.S.O., R.D., R.N.R., has been elected as the Member of the Council representing the Royal Naval Reserve in the vacancy caused by the death of Captain Sir David Wilson-Barker, Kt., R.D., R.N.R.

### Ex-Officio Members

Major-General Lord Bridgeman, D.S.O., M.C., has succeeded Lieut.-Genera Sir John Brown, K.C.B., C.B.E., D.S.O., T.D., on taking up the appointment of Director-General of the Territorial Army.

Major-General M. G. N. Stopford, D.S.O., M.C., has succeeded Major-General R. J. Collins, C.B., C.M.G., D.S.O., on taking up the appointment of Commandant of the Staff College, Camberley.

### Proposed Bye-Law to admit Ladies as Members

The Council have under consideration the question of eligibility for membership of the Institution of Ladies who are serving or who have served as officers with H.M. fighting Services.

They will put forward at the next Anniversary Meeting, on 3rd March, 1942, a new Bye-Law to give effect to this proposal.

### New Members

The following officers joined the Institution during the period 20th August to 30th November :—

ROYAL NAVY

Lieutenant G. P. B. Naish, R.N.V.R.

ARMY

Captain A. D. Balden, The Essex Regiment.
Captain P. M. McI. Kemp, Intelligence Corps.
Lieutenant J. A. Simpson, Royal Engineers.
Captain S. H. Lines, The South Staffordshire Regiment.
Major N. H. W. Joynson, The Loyal Regiment.
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Captain W. W. M. Chard, The Royal Fusiliers.
Captain N. D. G. James, Royal Artillery.
Lieut.-Colonel C. A. Hunt, R.A.S.C.
Captain E. E. Jones, R.A.S.C.

**Trench Gascoigne Essay Competition (Three Services), 1941**

The following essay has been received :—

" Plus ça change, plus c'est la même chose."

## LECTURES

The Council have decided to resume lectures at the Royal United Service Institution.

It is not possible to circulate a complete programme, but notices of forthcoming lectures will be sent out as usual.

## EVACUATION OF LIBRARY

By courtesy of Lord Newborough, the Library is now established at :—

Glynllivon,
Carnarvon,
N. Wales.

The Lending Library will continue to provide the usual facilities to Members, and requests for books will be dealt with promptly. All communications should be addressed, and all books after loan returned to the Librarian, Royal United Service Institution, at Glynllivon.

The Reading Room will continue to be provided with the leading papers, periodicals and writing materials for the use of Members.

Certain Reference books have also been retained in London.

## JOURNAL

The Service Departments have signified that they will continue to give facilities for the publication of the R.U.S.I. JOURNAL, and serving officers are invited to offer suitable contributions.

Matter which might be of value to the enemy must, of course, be entirely eliminated; but there is still ample scope for professional articles relating to former campaigns, especially the War 1914–18, which might contain useful lessons at the present time; also contributions of a general Service character, such as Strategic Principles, Command and Leadership, Morale, Staff Work, Naval, Military and Air Force history, customs and traditions.

### Date of Publication

While every endeavour is made to produce the Journal in the usual quarterly months, punctual publication cannot be guaranteed in existing circumstances.

## CHANGES OF ADDRESS

Members are particularly requested to notify any change of address which will affect the dispatch of their JOURNALS.

Such notifications should be received by the 10th of the month preceding publication; i.e., by 10th January, April, July and October.

## MUSEUM

### War Exhibits

Members and others interested in the R.U.S.I. Museum are asked to keep a look out for relics of the present war of very special interest and to arrange for them to be preserved in a place of safety pending the Museum being re-opened.

Consideration of space will inevitably preclude the acceptance of more than a limited number of small articles; but the Council desire to ensure that the Museum shall continue to represent the greatest achievements of the Services, their commanders, officers and men, throughout the ages. Personal relics of special distinction will in future, as in the past, be particularly acceptable.

## WAR DIARY

The War Diary which has been appearing each quarter in the JOURNAL is being re-published in volume form. Volume I is now ready; it covers the first year of the War—from 3rd September, 1939, to 31st August, 1940—and contains a map showing the "Operations of the B.E.F. in Belgium and Northern France, May, 1940."

Copies bound in stiff paper covers are on sale at the Institution, price 2s. 6d., packing and postage 5d.

Arrangements have also been made to reprint a large number of extra copies suitable for better binding with future volumes of the Diary.

The second volume is now in preparation.

## CHRISTMAS CARDS

Orders can now be received for Christmas Cards.

TYPE A.—A card with coloured reproduction on the outside of a "Grand Military Feast" which was held in honour of Queen Victoria's Coronation, July 1838, and inside the Institution's crest and seasonable greetings. Price, including envelopes, 6s. a dozen, post free.

TYPE B.—A card with the Institution's crest in gold on the outside and a reproduction in sepia of the exterior of the Banqueting House inside. Price, including envelopes, 4s. a dozen, post free.

Members are requested to state which design they require and to *enclose the requisite remittance with their order.*



**H.M. THE KING**

**INSPECTING THE 3RD CANADIAN DIVISION**

# THE JOURNAL
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## CANADA'S WAR EFFORT

MR. MACKENZIE KING, Prime Minister of Canada, as the guest of honour at a luncheon given by the Lord Mayor and Corporation of London on 4th September, said: "You already know something of Canada's war effort. We have transformed one of the least military peoples on earth into a nation organized for modern war. . . . To-day Canada is a granary and a storehouse from which we are sending you all the food that ships can be found to carry. Our country has also become an arsenal of democracy and a shipyard of the freedom of the seas."

Speaking later, our Prime Minister, Mr. Churchill, said that the war effort of Canada in men, in ships, aircraft, air training, in finance, in food, constituted an element in the resistance of the British Empire without which that resistance could not be successfully maintained—a tribute which was well deserved.

When the British Minister of Supply, Lord Beaverbrook, returned from his trip to North America at the end of August he too paid high tribute to Canada. Munition production, he said, was in full swing in the United States and was continually increasing; at home, while production was good, it was not so good as hoped for or intended; in Canada progress was excellent. In the Dominion production was up to programme and a marvellous result had been achieved.

Canada has a population of barely 12,000,000. Her financial resources are not unlimited, nor has her production problem been easy to solve; yet such has been the unity of purpose and the skill and vigour displayed in the Dominion that her contribution to the Imperial war effort has been truly remarkable.

Canada, like England, has had to study the apportionment of man-power between industry and the fighting forces. Conscription has not yet been introduced; nevertheless, the flow of recruits to the services continues. Statistics published on 29th May showed that

about 4,500,000 persons (3,300,000 men between 16 and 60 and 1,200,000 single women over 16) could be used in war service. Of these 611,000 were already directly engaged in the war (190,000 in the Army, 10,000 in Army training camps, 54,200 in the Air Force, 7,500 in the Navy and 340,000 in war industries). It was estimated that by 31st December, 1941, 80,000 more would be required for the Army, 35,000 for the Air Force, 7,500 for the Navy and 180,000 more for war industries—making a total of approximately 19 per cent. of Canada's available man-power employed for war service.

Recruitment of women for non-combatant service began at the end of last June, and the organization of a Canadian W.A.A.F. was announced in July. Over 800 women were to be enlisted on 1st September for the Canadian Women's Auxiliary Army Corps, which would eventually require 7,500 women.

When war broke out the Royal Canadian Navy was very small. It consisted of only 13 ships and 1,774 officers and men. By August, 1941, it had grown to approximately 250 ships (including 3 armed merchant cruisers, 13 destroyers, corvettes, minesweepers and smaller craft) and 22,000 officers and men. It is still growing.

The shipyards of Canada are busy with new construction. The programme involves the employment of over 20,000 workers at some sixty shipyards. Many of the naval orders are for Britain, but much is for Canada herself.

Canadian troops now in England total three divisions and a tank brigade. An armoured division is due to arrive in this country before the end of the year. In Canada one division has been mobilized for some time past and is under training, while early in August authority was given for the mobilization of another division of the Canadian Active Service Force.

Not the least of Canada's contributions has been her invaluable assistance to our air forces. The Empire Air Training Plan has already produced splendid results. In a broadcast on 8th July the Canadian Minister of Air stated that the scheme, intended to be in full operation by April, 1942, was six months ahead of schedule. The number of trainees had grown over a hundredfold since the schools were established in May, 1940, with 168 pupils. Referring to this scheme in a broadcast on 17th September last, the Duke of Kent said: "I do not think that people in this country have any idea of the magnitude of the plan, nor of the very rapid expansion which has taken place. Two years ago it was a plan; to-day it is a vital war industry which combines the advantages of mass production with the most skilful selection and individual training. I call it 'mass production' because Canada is an

enormous country, and training aerodromes are being built everywhere. It is 'mass production,' too, because airmen are now passing out from the schools, not in ones and twos, but literally in thousands . . . I believe it can safely be said that in this great air organization . . . there is to be found manhood which is not surpassed anywhere in the world . . . including not only Canadians and men from this country, but Australians, New Zealanders, Newfoundlanders and an encouraging and growing number of young men from the United States and from South America. This is a great partnership. We are all contributing to it in our own ways, but it is Canada who is responsible for the administration of the Plan, and Canada can therefore take special pride in its outstanding success."

On 30th September the Canadian Minister of Air announced that the Air Training Plan was to be extended until the number of schools and aerodromes already constructed is almost doubled.

The Royal Canadian Air Force itself is now more than ten times as strong as it was at the beginning of the war, and it is growing every day.

Canada's war effort as regards finance is also noteworthy. Up to the end of last July she had spent the equivalent of more than £80,000,000 on the construction of State factories to supplement the activities of shops which were working before the war. War orders fulfilled or being executed on that date ran into well over £340,000,000. Over £800,000,000 had been raised by way of war loan. The Dominion has also made large indirect contributions by tariff concessions on British imports, and large sacrifices by financial adjustments with regard to British purchases.

War production and output in Canada is on a great and growing scale. In a survey given by the Canadian Minister of Munitions at the beginning of July he said that by September there would be in substantial production virtually every sort of gun from rifles to the largest type of anti-aircraft weapons; that the delivery of motor vehicles had increased to a total of 120,000, with another 80,000 on order; the weekly production of aircraft had risen to over 40 (of which about 20 were fighting craft and the remainder training planes); and the number of corvettes and minesweepers launched had increased to 59 and 24 respectively.

In conclusion, we may quote Mr. Malcolm MacDonald, the British High Commissioner to Canada, who—speaking on 30th September—stated that Canada's war effort had reached terrific proportions and was still gathering momentum. Every shade of political opinion, he said, was united in the determination to make whatever sacrifices were necessary to bring about victory, and the outstanding question that Canadians put to him was: "What more can we do to help?"

# THE TWO FACES OF GERMANY

By Lieut.-Colonel H. de Watteville, C.B.E., late R.A.

GERMANY has two faces: one is turned towards the West, the other towards the East. Most Englishmen who may have visited Germany and become at all familiar with Germans as a rule see that western face alone; very few indeed ever manage to get to know the other—the eastern, although some may just catch a glimpse of it.

It was that western face which England was taught to look upon with sympathy, if not with affection, ever since Prince Albert of Saxe-Coburg came to this country to marry Queen Victoria. After his death a wave of German ideas swept over England until Germany became associated in the English mind with Christmas trees, carols, little nursery rhymes and poems, pretty children's toys, cuckoo clocks, and all the trivial things that used to make German nursery and home life of that period so attractive. Thus there grew up the legend of the good-natured, sentimental German family which coloured all English ideas about that nation. Later on, clockwork trains, stone building bricks and other knick-knacks found their way into many English homes; and so the illusion, if anything, grew stronger. After the Franco-Prussian war the efficiency and thoroughness of the German army aroused no little admiration for much that stood revealed in the course of that campaign. So matters went on, though in a more doubtful key, until the Great War revealed that eastern face of Germany. But even then its full grimness was turned towards Russia, so that the good-natured Englishman never realized the horror of the events that had taken place in the East; and so his sympathy soon went out to a beaten enemy. Consequently it is not surprising that to-day most English people, if they are asked what they know of Germany, will name a visit to the Rhine Valley, the Black Forest, Weimar, or the Bavarian Alps. Some may have stayed in Munich or Dresden; a few might have reached Berlin. But how many of these know Germany as a whole or really well? Many will grow enthusiastic about what they have seen, while some may have become devoted to new-found German friends. Others will wax eloquent over a climbing or ski-ing holiday with those splendid young German athletes. No: it is impossible, one may be told, that these nice German people can be so vile as the perverted and vicious British propaganda would have us believe.

But that is all because they only know that western face of Germany. The glimpse they may have caught of the eastern face has quickly been effaced by the pleasing impressions acquired during a limited, all too

limited, visit. Nevertheless, the other face of Germany is there—grim, barbarian, Nordic, call it what you will—just as it was a thousand years ago. Turned eastward, it looks out on the lands of the Slav with greedy, menacing eyes whose cruel gaze has never changed since the early days when the Germans began to hew their Fatherland out of the fields tilled by the Slav races; for Brandenburg, Pomerania, East Prussia were all hacked away from their former Slav owners by the sword. Gradually, bit by bit, by right of conquest, Frederick the Great did but continue the old, old process: Silesia, parts of Poland, and other lesser lands were joined, one by one, to the Prussian dominions by force or by fraud. In the XIXth Century Bismarck merely continued the same work.

To-day Hitler has come not only to maintain the tradition, but to outdo all his predecessors. For as the German Reich has grown more extensive, and armaments have become more potent, so has the barbarous, deadly might of the German engine of conquest gained in power, efficiency and destructiveness.

It is for this reason that a recent book sponsored by Lord Vansittart is so welcome.[1] It reveals the eastern German face in pitiless and incontrovertible manner, and the method is simple. A mass of excerpts has been carefully collected from all the most famous German writers, philosophers, historians and poets. These are interspersed with quotations from Frederick the Great, Bismarck, Kaiser William II and, lastly, with a long series of extracts taken from Hitler's own speeches and writings. Even the German clergy figure in this catalogue of damning evidence, which proves that the barbarian outlook has never altered. The quotations have been aptly grouped under certain headings according to their subject, each section being introduced by a terse prefatory notice. As Lord Vansittart rightly observes, the result may well infuriate the Germans. Yet, as the reader goes through these extracts, many taken from the foremost historians and philosophers of Germany, he will be impressed more and more with the fact that her best and greatest brains have been guilty of contributing to this ever-growing current of Pan-Germanism, that doctrine which has culminated to-day in the shape of Nazism or Hitlerism. As Lord Vansittart observes, "every bad tendency has been increasing for the worse" until Germany can be likened to "a dipsomaniac for power" who, in order to attain her end, "may pass with an untroubled German heart through a sea of blood and tears of other nations."

Yet the system on which this record has been compiled actually serves to conceal certain features in the growth of this lust for power.

[1] "Thus Spake Germany." Edited by Coole and Potter, with a Foreword by Lord Vansittart. (Routledge, 10s. 6d.)

In the first place, modern German thought will go so far as to exclude from the great figures of German literature and art all those who are suspect of internationalism, of tolerance to the Jews or of doubtful Nordic patriotism. Accordingly, there are banished from the official list of great Germans the names of Dürer, Goethe, Lessing, Herder, Kant, Schiller and Beethoven, although the good Nazi may yet succeed in finding certain extracts from their masterpieces which can be made to pass muster as being orthodox. Sometimes this can be done only by suitable manipulation. It is indeed astounding to find that modern Germany has virtually disowned Kant—one of the great brains of all time, because he once wrote a remarkably able treatise on "Perpetual Peace," which has now been condemned by Nazis as the "irresponsible ramblings of senility."[2]

On the other hand, who are they who have mainly inspired the present-day Nazi faith? First, perhaps, comes Hegel, a wizened, asthmatic invalid who, with his theory of the omnipotence of the State and of the coming era of Germanic supremacy, drew large audiences to Berlin a century ago to hear his lectures. Yet, strange to say, Hegel with his doctrines became a fountain of inspiration for Karl Marx, Lenin and all modern revolutionaries and dictators. Next on the list can be placed Schopenhauer—a clever, morose thinker, whose family was tainted with insanity. Then beside him should be set Nietzsche, a remarkable writer, yet a pessimist of the blackest sort, who died a lunatic. To them should be added Spengler, the modern philosopher of gloom, who predicted so confidently the decay and ruin of the British Empire; for all his great learning, he was a morbid crank. Such are the leading prophets of the Nazi faith—all of them more or less abnormal beings.

Again, Lord Vansittart's book, being strictly limited to a review of German thought, does not show how the dogma of the superiority of the Aryan race originated mainly from an eccentric Frenchman and a renegade Englishman. Count Arthur Gobineau—the "discoverer" of Aryan superiority—was a hyper-sensitive French aristocrat, who went to Persia as Napoleon III's ambassador. There he first enunciated his theory of the Nordic man's pre-eminence which, so he maintained, could only be found surviving in the Norman and Germanic nobility. From him Richard Wagner, the great musician, developed the half-savage worship of the superman which is enshrined in the operas based on the Niebelungen Saga and on its barbaric mythology. But it was by

[2] Kant's grandfather was a Scottish immigrant into Prussia. His true name was Cant.

Houston Stewart Chamberlain, who sprang from British naval parentage, that the modern text-book on the supremacy of the Aryan race came to be compiled. Chamberlain, having left his own country as being uncongenial to him, made Germany his home, and there produced the two weighty tomes, all illustrated by diagrams of Nordic skulls, that are now accepted by Nazidom as justifying the worst excesses committed in the name of " racialism."

An interesting note is also struck in this book in connection with the Nazi creed of Aryan racial purity. No other than Adolf Hitler himself, it is shown, has stated that modern Germans are a mixed race. This is what Hitler wrote in *Mein Kampf* (p. 394) : " Unfortunately our German people no longer has a homogeneous race as its basis. And the fusion of its elements has not made such progress that one can speak of a new race born of this fusion." How very modern the development of the extreme anti-Semitic doctrine really is stands revealed by the date of the oldest extract referring to the subject and pilloried in this collection. It was written in 1890, while the first true categoric enunciation of the Nazi anti-Semitic doctrine was made by Chamberlain as late as 1899. In itself, the doctrine is of course far older, since it dates from the Middle Ages, and has come to light in many parts of the world since those days. But nowhere and at no time has it found such violent expression as in modern Germany ; not even in certain evil outbreaks of Tsarist Russia of old.

Another incentive to such anti-Semitic excesses, which have now been legalized by the barbarous Nüremberg Decrees, may be added. Hitler's technique as a skilful demagogue and spell-binder ever seeks to provide his hearers with a scapegoat whom they can hold guilty for their own misfortunes ; the next step is to vilify him ; the third and last is to proclaim him to be a legitimate object of vengeance as a bloodthirsty, ravening enemy. Such was the fate of the Jew. The process is no more than a familiar exploitation of the crowd-mind ; nearly all revolutionary orators have had recourse to the method. Hitler constantly employs it. In Germany the Treaty of Versailles began to be abused in this fashion as early as 1919. Then gradually, by working on the converse principle to the above, Germany convinced an all too credulous and sympathetic Europe that she had been selected as an innocent victim by the ferocious treaty-makers at Versailles. In contrast to this attitude, it might be added that no reference has ever been made by any German statesman to the vindictive rapacity that marked the German treaty imposed on a helpless Russia at Brest Litovsk in 1917 : that is studiously forgotten.

In another section of his book Lord Vansittart could well have amplified the selection of quotations relative to the glorification of war and to its place in the national life of Germany. The reason for such omissions may well be that they form a huge bulk in modern German military literature. Their increase since 1919 have been fantastic. A few excerpts, however, might well be added to those given in this book. What could be more outspoken than: "A war of destruction is a war whose political object is the destruction of the hostile state."[3] Elsewhere this statement is expanded as follows: "Future war will be total, not only as to the mobilization of the forces required, but also in its results; that is, total war must end in total victory. Total victory means the utter destruction of the conquered state, its total and final disappearance from the stage of history. The conqueror will not negotiate with the conquered concerning terms of peace, because none will be left capable of negotiation. The conqueror will declare such terms of peace as he thinks fit. Total war is really no more than a vast struggle of elimination whose result will be terrible and decisive for all time."[4] This same article continues: "The Great War ended without any decision at all being reached, since neither side vanished from the stage of history or was even pushed away therefrom for any duration of time:" a truly strange contrast with the German outcry against the Treaty of Versailles, which permitted Germany not only to go on existing, but was also so weakly enforced that it facilitated her present re-armament. But such sentiments and such a military doctrine are only the outcome of the forces that had been at work for centuries. That, indeed, is what the masterly selection of quotations in *Thus Spake Germany* amply proves. "We want war!" howl the Nazis. "Of course you do," observes Lord Vansittart, "if you think war 'beautiful'!"

When the Germans have yearned for war they have never been over-scrupulous as to the method to be employed in order to bring it about. Here, perhaps, it is possible to suggest that Germany has learnt something from Italy, more especially in the combined use of the political and military weapons in war. It is from Machiavelli's notorious work, *The Prince*, which Mussolini absorbed greedily as a boy and has since declared to be "The Statesman's Vade Mecum," that the Dictators have learnt most. Already Frederick the Great had shown himself to be a student and apt pupil of the Florentine secretary. Bismarck and now Hitler have but followed that lead. In the well-known Chapter XVIII, of *The Prince*, entitled "How Princes should Keep Faith," there can be found the entire theory on which the disregard of the pledged word in

[3] *Wissen und Wehr*, November, 1934.
[4] *Deutsche Wehr*, Supplement, June, 1935.

international relations is based. The concluding paragraph of that chapter —a gem of moral obliquity, deserves quotation: "A certain Prince of our own days, whose name it is well not to mention, is always preaching peace and good faith, although the mortal enemy of both; and both, had he practised them as he preaches them, would oftener than once have lost him his kingdom and his authority."

In his mention of Italy it is interesting to find that Lord Vansittart has included certain references to that country which are worthy of special notice. Thus eminent German writers, so he shows, have sought to prove that Dante, Leonardo da Vinci, Raphael and Titian have come of German stock and borne German names! On the other hand, when it comes to the matter of war it is a very different story. Amongst such pertinent quotations are: "Italy cannot be looked upon as a rival as she is too incompetent in warfare." "The Italian Government has now written her perfidy indelibly with letters of blood on the pages of history." (Bethman-Hollweg, before the Reichstag on May 28th, 1915.) "The military value of a nation with these moral qualities is more than questionable. The Italian is essentially unmilitary, and when he is dressed in uniform he struts about flashing his eyes and rattling his sabre, hoping that everyone will look at him. And when the Italians find themselves in a really tight corner, as on the Isonzo front at the end of October, 1917, there is no holding them. Universal panic sets in; each man thinks only of saving his own skin." (Banse, in 1934.) This must be pleasant reading for the Axis partner! So it becomes possible to believe the tale that when Mussolini visited Berlin in 1937 Field-Marshal von Blomberg fell into disgrace for saying that "whoever has Italy on his side as an ally will lose a war."

Lord Vansittart provides much that goes to show what the Germans mean, and the purposes they propose to attain, under their conceptions of *Lebensraum* (Living Space) and *Weltordnung* (New World Order). *Lebensraum* is little more than that perennial process of German expansion eastward which has been going on intermittently ever since the Order of Teutonic Knights conquered, destroyed and "civilized" East Prussia about seven centuries ago. It is the same process that the Nazis are engaged in applying to Poland—the war of destruction. Even now the same ruthless methods are being enforced in occupied Russia. That much is the real significance of *Lebensraum*; it is indeed the true eastern face of Germany. But now in the West, on the other side, her methods have been modified; the barbarian's countenance once more assumes the mask of the West. No sooner had the collapse of France been achieved than a new doctrine was proclaimed; this was the *Weltordnung* —the New Order. For many reasons the full implications of the war

of destruction could not be followed to their logical and brutal end. The creation of *Lebensraum* had therefore to be modified. The subjugated populations could not be destroyed; therefore they must be compelled "to collaborate" with the *Herrenvolk* (the Master-race). Now what does this collaboration really signify? It is in fact the application of the general principle that the subject countries shall be deprived of all industries that manufacture any of the instruments and resources useful in war; that the building of all aircraft, ships of war, motor-cars, the manufacture of chemical products and scientific apparatus shall become reserved industries for Germany, or may only be allowed to subsist, in subject countries, in such form as may be permitted by the vast German industrial trusts which will be formed for the control of European industry as a whole. The first object will be to limit the manufactures of the subject countries strictly to the bare necessaries of every-day life.[5]

To compensate for the loss of such specialized or lucrative trades the subjugated countries are to be made to revert to agriculture. Two purposes will be served by this process: first, Europe will be made self-supporting and thus immune to any sea-blockade; secondly, the subject countries will satisfy the needs of Germany in all those materials and products which the *Herrenvolk* does not or cannot obtain from its own soil. So the Norwegians must fish; the Dutch must grow vegetables; the Belgians must provide coal; the French must make wine and manufacture silk, perfumes or other articles which Germany does not supply to her own people. In return, the *Herrenvolk* will supply the motor-cars, the chemicals and the scientific or electrical apparatus which the subjugated countries may still be able and allowed to buy. The result of this transformation and of this new order may perhaps be gathered from the statement recently made by Hitler himself concerning the benefits which Nazi Germany could await from her future acquisition of the Ukraine. As he put it, if German management and German control were introduced into that region, the population of Germany "would soon be swimming in fat." All this is not an exaggerated picture, since the basis of these assumptions can be found by those who may choose to study the pages of Lord Vansittart's book.

The wave of savagery which has spread through the occupied countries is significant of a new tendency. It marks the failure of the Hitlerian plan to subjugate and split up the Soviet Union by political

[5] For this reason the great Citroën motor works are already being shifted from Paris to Metz, now to become a purely German town; whilst the entire plant and resources of the extremely efficient Phillips electrical works are being removed from Holland into Germany.

means combined with military threats owing to the stubbornness of the Russian resistance. The German General Staff are clearly taking fright at their commitments in that country. Consequently the subjected nations are to be squeezed into producing more war material, more supplies for Germany and more labour, and where possible volunteers for the Eastern front. This means that the General Staff is taking control of the whole of the German conquests. The policy adopted by Ribbentrop, Neurath and others of "collaboration" has now been utterly discredited in Germany. The General Staff intends to liquidate all these charlatans together with their works. It is only another proof, if such were needed, of the fundamental brutality of the German mind, for these spasms of barbarity are not merely personal outbreaks of Hitler himself, they are the calculated policy of the General Staff: a return to the teachings of Ludendorff that in time of war military authority alone must rule. At present Hitler is essential to the General Staff; but it may well be that the trend of affairs will bring into existence the rule of the German Generals, with Hitler and Nazism as a figurehead to the whole apparatus of government.

Apart from the immediate interest and value which this work may possess, there is still another aspect of the subject which appears to be of high importance. It may well be asked how it is that this eastern face of Germany should have escaped detection until the present catastrophe had overtaken the world. It is true that a few courageous speakers, such as Mr. Churchill, had fearlessly exposed the coming peril in a number of speeches before the House of Commons; yet the majority of his hearers merely treated him as an alarmist! Even now Lord Vansittart can complain that the publication of his opinions concerning Nazi Germany, in spite of the formidable indictment put forward in the book under review, has brought him much abuse, and even threats! That the House of Commons has some responsibility in the matter of Germany's breaking loose in Europe could not be denied. Mr. Churchill's revelations foreshadowed the need for a great re-armament. That must be a costly business, so they were intensely unpopular. They even pointed to possible war. That cut right across all those complacent notions of "collective security." The majority of the House of Commons clung to such shibboleths and so could not, or would not, understand, and did nothing to enlighten the people at large in their delusions. So re-armament was postponed. With that postponement British foreign policy began to weaken more and more.

There are two reasons that have rendered the comprehension of the true German political outlook and intentions so difficult. It is, of course, never easy to grasp the reasoning and, still more, the deeper

motives of any adversary's conduct. The very feeling of opposition is capable of warping judgment. In Britain, moreover, there has always existed a heedless optimism and an irresistible inclination to postpone repugnant tasks. Above all there has flourished a complete ignorance of the Continent and its inhabitants. A few continental tours and an occasional stay in some cosmopolitan holiday resort are no equivalent to living among foreigners on, so to speak, level terms. Consequently, it is all too often assumed that all European people must be just as tolerant, easy-going and good-natured as most of us at home. No delusion is more deeply rooted among working people in Britain than that the working man is essentially the same sort of creature and influenced by the same reasoning and by the same emotions all the world over. What a mistake! It might well have happened that if Lord Vansittart's book had been published a few years ago it might have been stigmatized out of hand as a travesty of the truth—and quite possibly as a gross libel on the German nation.

Again, it used to be popularly assumed up to a very few years ago that the designation of National Socialist was in Germany equivalent to little more than a label applicable to a political party. There seemed no call for a more exact definition of that term than of a Communist, Fascist, Socialist or Reactionary. National Socialism, it was assumed, was only a political party with which it should be possible to argue or to differ. If it seemed objectionable, then it was open to the German people to vote against it.[6] What an error! Lord Vansittart shows that National Socialism never was and never could be a political party. It is no more nor less than a truculent, bellicose national faith such as has never been known, and could not exist, in this country. It is more akin to a form of mental disease—a mania for destruction blended with a lust for power. Its sufferers seem only capable of satisfying the cravings engendered by it through indulgence in tyranny of a purely savage type.

That there is a minority in Germany which would willingly go back on the Nazi faith and all it stands for may be accepted, otherwise the concentration camp and the terror of the Gestapo would not be so widely spread as they are. Countless thousands there may be now living in Germany who might otherwise actively and openly oppose the present regime. Lord Vansittart in his foreword postulates that possibly not more than 75 per cent. of Germans are actively and virulently National Socialist. That is more than likely. This minority must naturally include all non-Aryans, political exiles and victims of

[6] So we saw Mr. George Lansbury going to call upon Hitler in Berlin in order to satisfy himself that Hitler's intentions were peaceful. Hitler persuaded his visitor that they were.

the terror. Nevertheless, among younger Germans—say all under 25 or 30 years of age—it would probably be difficult to find any substantial group who are not well inoculated with the Nazi virus. Among older people the proportion is undoubtedly much greater; among Roman Catholics the percentage will be yet larger. Yet the hard fact remains that in the days of the so-called democratic German Republic these "Moderates" effected nothing, whilst since that time they never lifted a voice or a finger during the troubled days which witnessed the rise to power of the National Socialists. It seems questionable whether they will be able to make themselves felt any more in the future.

In conclusion, it seems relevant to ask: What will be done with this mad tiger among nations when it has been brought down? It is very true, very magnanimous and far-seeing to declare that a prosperous Germany is necessary to a healthy Europe. But surely there is a long way to go before a prosperous Germany can be admitted as a respectable and equal member of the European family of nations. Before considering the question at all, a perusal of the chapter of this book entitled "Germany in Defeat" may well be recommended. Having read these pages, let us then ask ourselves what should be the immediate conditions following Germany's defeat. First of all there must be total demobilization of all her armed forces. This implies the immediate cessation of German war industry. Some twenty million able-bodied men will be suddenly thrown out of work and unable to earn a living. What will happen then? Will a probably bankrupt Germany be able to find work—or the dole—for such huge numbers? How are they all to find means of subsistence? The problem will be all the more urgent because one of the chief advantages of National Socialism in German eyes was that the new regime claimed to be able to put an end to the fearful unemployment that prevailed between 1929 and 1935. That was achieved by turning this mass of unemployed labour on to armament work. But if this armament work comes to an end, how is German labour to be utilized? Let it be realized, too, that in continental Europe, if not in Britain, Germans may by this time have come to be regarded as the pariahs of the world. Who will want to trade with Germany when the day of liberation arrives? Will the Czechs, Poles, Yugoslavs and Greeks, not to mention Norwegians and Dutch, be ready to resume commercial and economic relations with their present oppressors, especially in a Europe which by then may be utterly ruined and perhaps hard pushed to earn its daily bread? Will another revolution take place in Germany? And will another Hitler arise?

It is inconceivable that the nations subjugated by Germany during the war will see things in the same light as a victorious Britain or the

United States. To subsidize German industry again, as was done after Versailles, may be an impossibility for us, whilst America may not be ready to do so. In those years some 26 milliards of marks were poured into Germany to resuscitate her industry and commerce. Some 11 milliards of them were paid back in reparations, but the rest went to creating the plants that were to be employed in re-armament. The whole dilemma of the future may be further aggravated if America should become less interested in the problem of Germany down and out than in Germany as a menace to the Western Hemisphere. It is as well to recall the opinion of a well-known Australian journalist, who, when broadcasting some weeks ago, bluntly stated that in dealing with the future of Germany the Dominions will claim to be heard and might be found somewhat " tougher " than the Mother Country. Even more to the point is the way that a distinguished Pole put it when he said : " Never again ! We intend to secure ourselves against the future, and the Nazis themselves have shown us how it is to be done ! "

# THE INDUSTRIAL POPULATION OF GREAT BRITAIN AND THE WAR

By CAPTAIN R. H. BRIGHT, *p.a.c.*, Royal Tank Regiment

STATEMENTS are frequently made in the Press and elsewhere to the effect that the present war affects and is the concern of every individual member of our community. This is recognized as being peculiar to modern warfare. Prior to the Napoleonic Wars, during which most of the population were affected to a greater or lesser degree by the Berlin Decrees—although even then it is unlikely that the people themselves all realized it—wars were the concern of professional armies and navies, and the resulting peace treaties were concluded by bartering the advantages gained by either side. Even in the Napoleonic Wars relatively small sections of the population were actually engaged in fighting or in the provision of the equipment necessary to maintain our forces in the field; moreover, the provision of that equipment did not vitally affect the lives of anyone as it only represented a small section of the nation's industry as a whole. The payment for these wars and the resultant taxation were the only effects generally felt. In modern warfare, however, every man, and to an increasing extent every available woman, is required either for the fighting forces or for the production of the equipment and war material which they require. In addition to this a large number of people must be employed in the production of food and articles essential for the well-being of the civilian community as well as for the fighting forces; but it is now being more and more fully realized that this latter number must be brought down to as low a figure as possible in order to release the maximum amount of man-power available for the fighting forces and the production of that equipment and war material without which mere numbers of fighting men are of no avail.

The German leaders realized this at a very early stage in their preparations for this war. They have not only introduced and practised what is now understood as "total" warfare in all their invasions, by which means they have sought to reduce their enemies to a state in which they can have neither the will nor the means to continue resistance, but they have also realized that such warfare is "total" in the industrial effort required to wage it. Their aim for so-called self-sufficiency has of course largely been responsible for their drastic re-organization and regimentation of industry—an aim which we have lacked. In peace-time our prosperity is based upon our overseas trade, and in war-time, owing to our command of the seas, economic self-sufficiency is not

essential for our survival, although it might easily become so should that command ever be jeopardized. Moreover, the Germans have actually felt the result of our blockade in the last war. In spite of this, however, the organization of their industry for self-sufficiency may still be regarded as complementary to the organization of industry for total war production. In this the enemy has obtained a good start, and every effort must therefore be made by Great Britain and her Dominions to make up for lost time.

In this organization of industry, the effort of every individual employee counts. It is realized that every man is affected by the war, but what is not nearly so widely grasped is that every man himself affects the outcome of the war. It is his own individual actions which, taken in the aggregate, will win or lose for us this war just as surely as the manœuvres of the fighting forces, and no section of the population has a more important part to play than the industrial population engaged on the production of essential war material. The organization of industry for war production is all-important; but the most economic use of labour, in the sense of extracting the maximum effort from every individual employee, is equally important.

The study of the industrial population of these islands, therefore, and the effects of various factors upon it, becomes no mere sociological problem of academic interest or one to be relegated to the care of any political party after the War. This study may prove just as valuable in the lessons to be learned from it as the study of military art in the field. It is true, of course, that it may not directly affect the actual decisions of any military commander, who will make those decisions according to the men and material which he knows to be available at the time. It is not his immediate concern as to how those men and that material became available. On the other hand, the study of the industrial population is directly the concern of those responsible for the supply of war material, and it forms an integral part of any study of the war effort as a whole. The main factors affecting this section of the population, namely (1) Environment while at work in the factory; (2) Facilities for recreation in leisure time outside the factory; (3) Standard of living, especially as regards food obtainable and the means available for buying it; and (4) Propaganda—which merely implies the bringing home to every man what the war effort really entails and what it is for—will be considered in turn.

## Environment within the Factory

The first essential for obtaining the best results from any employee in any factory is to put the right man, or woman, on the right work.

It is obvious that any man or woman will be employed at their own trade, if they are skilled, but even within any particular trade the work upon which any particular individual may be employed varies considerably. The work to be done by unskilled labour will vary enormously. It is not only necessary to select the work best suited to any man's or woman's skill or ability, but also to his or her individual character in many instances. For example, in one shop employing female labour in a large armament producing firm it was discovered that no operator could stand the noise of a certain machine for any length of time. The machine in question was a circular saw for cutting sheet metal, and the scream of such a machine at work is agonizing, as can well be imagined. However, eventually a girl was put on to this machine who could not only stand the noise but actually enjoyed it. As this case appeared of considerable psychological interest and even importance, it was investigated by the medical officer of the firm concerned, and he discovered that the girl was an only child who had been severely bullied by older children at school. This had apparently aroused in her a deep-seated resentment which she had never entirely lost. She therefore enjoyed working a machine which she knew would inflict physical discomfort on the other girls working in the shop. This is, of course, an extreme or almost a freak case, but it does illustrate the point of fitting not only the correct ability but also the correct temperament to the correct work.

Then the physical conditions, such as lighting, heating and air-conditioning in the shops where employees work, must be constantly considered. These should be not only those required to maintain the physical standard of the employees, for, quite apart from any humane considerations, sickness is wasteful, but also those required to keep them contented. In this connection, any complaints should be investigated promptly and, if proved to be justified, the remedy should be embarked upon as soon as possible. If the employees themselves see work started at once to remedy any justifiable complaint that they themselves have made, this will go a long way to secure their contentment. On the other hand, nothing will stir up discontent more quickly than the feeling that nothing is being done. Care for their well-being in other ways, such as the provision of good canteens, rest rooms, first-aid treatment and recreational facilities—such as concerts in the dinner-hour, also has an effect on morale far greater than the actual direct physical result. A contented worker who feels he is being looked after at every turn will give far greater output than a discontented one, and he is also far less liable to fall a victim to sickness, real or imaginary. Contentment will also reduce absenteeism, an evil which has been attracting considerable attention in the Press.

The concrete results of adequate medical attention are no less striking than those on morale. In a certain shipbuilding yard, with medical supervision and the appointment of a State-registered nurse, the number of cases referred to hospital per month dropped from 98 to 20 before three months had elapsed. Moreover, it should be remembered that the long hours worked in industry and the early black-out in winter months, with the inevitable putting forward of outside practitioners' consulting hours, often precludes the majority of work-people from consulting their own doctors at the present time. The effect of over-crowding, which may be greatly alleviated by air-conditioning, is the same as that encountered in the Services, and cerebro-spinal fever has been known to result; but there are also the so-called industrial diseases which, as their name implies, are more or less peculiar to industry. Dermatitis is one of the more serious of these owing to the extensive handling of irritants known to produce it, and prompt medical attention for any employee contracting it is essential if valuable hours of work are not to be lost. Fuel oil and other heavy oils, lubricants for machining operations containing trichlorethylene, and many paints—owing chiefly to the "thinners" used with them—will readily cause Dermatitis if rubbed on the face and more tender parts of the skin. On the other hand, some workers are unquestionably more liable to this disease than others, and anyone with a past history of skin complaints should be kept away from handling the substances named.

Fortunately, the black-out does not appear to have had so adverse an effect on the health and spirits of the work-people as might at first have been expected. In fact, against the disadvantage of having to work perpetually in artificial light is the advantage that many shops with glass roofs are cooler in the heat of summer than was previously the case. It is obviously best to have the black-out arrangements removable by day, and in some smaller shops this is practicable. In large shops with big expanses of glass roof, however, this may not be possible; and, in the interests of safety from flying glass fragments, all glass may have to be replaced by an opaque material, which will result in permanent black-out, with the necessity for artificial light by day as well as night. General air-raid precautions and adequate facilities for dealing with casualties in the event of such raids are as important as adequate medical services for an army in the field. Prompt treatment of casualties cuts down wastage of personnel and the time interval before they can return to work. It will also raise the standard of morale so that the workers will be willing to remain at their machines under conditions of far more imminent danger than would otherwise be the case. This is shown clearly by the effect of the provision of "Jim Crows," as the work-people in practically all factories are willing to remain at their machines through

an " Alert " if they are satisfied with the arrangements made for their own roof-spotters.

### Facilities for Recreation

There is a definite relationship between hours of work (including the amount of time off at the week-end) and the efficiency of employees while in the factory, which varies with the type of work performed and the characteristics of the employee. The effect of a seven-day week on repetition workers will show far more quickly than on those whose work includes some variety. On purely repetition work, girls are better than men as they do not get bored so quickly, but even their efficiency falls off very rapidly if they are allowed no break. This was most strikingly illustrated in one factory in the Midlands during the summer of 1940, when the drive for increased aircraft production was starting. This factory was producing small parts which necessitated entirely repetition work of a very low standard of skill. During the first seven-day week after Lord Beaverbrook's appeal for increased aircraft production, the output of the normal 5½-day week was doubled. This increased output was not maintained, however, and within a month the production of this factory in the seven-day week had fallen below its previous output in the 5½-day week. The factory was then, very wisely, closed down for three days before re-starting work on more normal hours. There is no doubt that even skilled men on work with some variety require at least one day off work a fortnight, and repetition workers require at least one day off a week.

Next there is the question of the facilities available for recreation in spare time. Football matches, racing of all kinds, and other amusements which have a wide appeal to working people and therefore attract large crowds, cannot be carried on to the same extent as in peace-time. On the other hand, it is wise when considering the advisability of forbidding any of these amusements to consider the effect that this will have on the people who attend them. For example, from time to time there has been much argument in the Press as to whether horse-racing should be stopped altogether. Usually, the lines along which this argument is conducted concern the amount of food needed for the horses and the number of men employed in looking after them, which is really very small in relation to the number of people for whom recreation is provided. Surely the only sound lines on which to argue are whether the continuance of the sport increases the war efficiency of the nation or not. This is the yardstick by which the value of all recreation which requires the employment of men and material should be measured. If the efficiency of a large number of men in the factories is increased by allowing racing to continue, and the value of increased production

thereby obtained is greater than that of the men and material employed in the organization of racing, then it is worth while. If not, then it should be stopped, and the men and material employed to better purpose elsewhere.

The value of recreation to any industrial worker is, in many cases, two-fold. The first beneficial result is embodied in the meaning of the word "recreation" itself. It is a re-creation or building up again of the mind and body so that they are more fitted for the mental and physical strain to which the man has to return. The value of this every-one has experienced for himself. The other result is to remove the man, even if only temporarily, from the anxieties of his home life. A simple example will serve to illustrate this latter point: An employee, aged about fifty, in a certain drawing office was frequently absent, apparently for reasons of health; his appetite was very poor, and he was extremely emaciated—the reason for which was found to be the latent antagonism of his wife against him, which took the form of her preventing his gaining any satisfaction from his food. When he could escape from this in a social evening, however, he would eat and drink heartily and, as the result of a series of such evenings, he was enabled to continue working for ten months without the loss of one day.

### Standard of Living

In many manufacturing districts, especially in those connected with the heavy industries which felt the worst effects of the slump period, the standard of living among the poorer workers went up with the adoption of the re-armament policy and consequent increase of prosperity. After a long period of unemployment, in many cases workers were not only re-employed but earned more money than had been possible for years before. The means of the poorer class families therefore rose sharply and, although the increase of money available did not always lead to wise spending a lot was and is being spent on things which are commonly regarded as necessities, but which were not within the reach of the poorer classes of families before. This is reflected in a phenomenally sharp increase in the takings of the cheap class of chain stores selling hardware and other so-called necessities. That the effect of rationing foodstuffs has not been more widely felt by the industrial workers is probably due to the fact that for many years during the depression period a family could not buy as much meat and other items as they are allowed on their ration. The rationing of sugar is the most widely felt, as so much is usually drunk in tea—though its actual effect on the diet may be made up by the rise in the standard of other food consumed. In this connection it should be remembered when controlling rationing that it is not only the actual foods which a man needs to keep him healthy that

must be considered, but also those which he thinks he needs and misses when they are absent from his diet. If a reasonable quantity of these latter foods is not available, the man will not only be discontented with the food he eats, but that discontent will also affect his health. Thus, many foods which medical evidence may show to be not essential in a balanced diet may have an indirect effect upon health and well-being.

Works canteens have a very large part to play, as they provide a good, well-cooked meal for the worker in the middle of the day outside his normal ration. Moreover, this meal can be made suitable to the man's physical needs, whereas the food he gets on his return home in the evening very often is not. A heavy meal fried in fat after a comparatively long period of fasting is most conducive to dyspepsia, which is one of the most common causes of lost hours in the factory. That this dyspepsia is not primarily due to diet, but to emotional factors in family life, worry and mental stress, is now widely recognized by the medical profession, but diet is a contributory factor. Prolonged periods of fasting also most definitely have an effect upon the occurrence of accidents. In a certain armament factory, the Safety First Committee, which had been very wisely set up (as apart from its findings its existence contributes much to the contentment of the workers) very soon discovered that the majority of accidents occurred between 9 a.m. and noon and 3—4 p.m. This is partly because when an individual is working hard he is using a great deal of blood sugar, and at these times the amount of this sugar available is lowest, especially if the man left home early after a light breakfast or did not have a good dinner. This might be counteracted by supplying sugar in tabloid form to workers during these periods, but this is of course difficult in war-time. On the other hand, the supply of milk in the middle of the morning is certainly a great step in the right direction. It is perhaps interesting to note that in the Krupps Works in Germany before the War output was increased nearly 80 per cent. by supplying to the workers acid sodium phosphate in solution. This does show the importance of adapting research discoveries to psychological needs in industry.

In connection with the supply to workers of those auxiliary food substances known as vitamins, some most interesting experiments have been carried out. It is well known that sunshine is essential to health, but the lack of its beneficial action on the body may in part be made up by the supply of those vitamins the production of which that action stimulates. Black-out, and the long working hours in artificial light which it entails, coupled with the long winter nights, means that workers are seldom exposed to sunlight except for very short periods. In some firms apparatus for artificial sunbaths has been installed, of which the

workpeople are encouraged to make use during their breaks, and especially the luncheon hour. This is an admirable solution on the small scale, but may be impracticable where large numbers are employed. An alternative is to supply the necessary vitamins in capsule form, and this has been tried in some firms, where concentrated vitamins are supplied to employees on a large scale. The results have been most satisfactory, and there has been a noticeable diminution of illness, especially respiratory diseases such as colds and bronchitis. Another definite effect is in the alleviation of eye injuries, and one medical officer categorically states that he can tell at once in the case of a foreign body in the eye whether an individual has been taking his capsules or not. Foreign bodies may be removed from even the cornea of the eye of an individual who has been taking his capsules regularly, with the absolute certainty that no damage or scarring will result in the process. As such foreign bodies in the eye are amongst the most common injuries in the engineering industry, the importance of this cannot be over-stressed. As well as general improvement in health, therefore, two definite results are achieved by supplying the necessary vitamins to workers—first, reduction in colds and allied complaints, with the absences they may entail; and second, the great reduction in the final results of eye injuries. In addition, the occurrence of boils amongst workers becomes far less frequent.

### Effect of Propaganda

It is not intended to discuss propaganda in itself, but only the effect it has upon the industrial population as regards their war effort, and in this respect the task to be performed by propaganda may be stated in simple terms: it is to bring home to the workers that there is a war on and that this war is essentially their concern; if it is lost, all their hard-won rights and privileges will avail them nothing; slavery and misery such as they have not known for generations will return, and all social progress will be arrested. Once this is realized, there will be no shirking or serious absenteeism. In this respect, the most effective propaganda has been heavy enemy air attacks on the town concerned—deplorable though all other effects may be. Many industrial towns have now felt the effect of this, and it is perhaps a little comforting to reflect that there is one good result from all the suffering and damage caused.

In one industrial town a series of minor raids occurred night after night; practically no damage or loss of life were caused, but the population were kept awake during those nights. The raids were purely in the nature of a nuisance, and did not succeed in bringing home to the population realization of the war; but as the result of loss of sleep

absenteeism increased alarmingly. After a few weeks, however, a really heavy attack occurred in which a large part of the town was demolished, with considerable loss of life. The way in which all concerned worked to get the factories back into production was most remarkable, as it was then universally realized what the war meant. Several other heavy raids have occurred on the same town since, but have entirely failed to discourage the population, and any industrial damage caused is repaired with the minimum of delay.

### The People Themselves

In a case such as that just quoted, the result obtained depends upon the characteristic reaction of the people concerned. It has been proved impossible to terrorize any section of the British people by concentrated air attack. Irish and other imported labour is not so stable in this respect as solid British stock, which is to be expected, as the same attributes which enabled British troops to stand the conditions of trench warfare in the last war are enabling the industrial workers to carry on under the conditions of aerial bombardment in this. It is essentially the same dogged spirit which enables workers to continue their work and repair any vital damage after a night of havoc. It is those national characteristics which have carried the nation through so many crises in the past that enable the industrial population of Great Britain to carry out its vital role in this war, in spite of all enemy action. On the other hand, because the workers will continue production under the most difficult conditions, this is no excuse for not providing them with the best that are possible and practicable. An employee may carry on cheerfully under the most adverse conditions produced by enemy action, but the same man will complain bitterly if any normal grievance he may have with his ordinary working conditions is not thoroughly investigated and any necessary remedy effected, and his production will suffer in consequence. At a time when increase of productive capacity is urgently required, far more may be accomplished by the study of the industrial workers themselves than has previously been realized. In this connection it is most instructive to note the results obtained with dilutee labour which has newly been introduced into industry, and its reaction to industrial conditions. Just as experience shows in the Services that a really good and useful man will prove his worth in any circumstances, so does industry bear this out. An individual who has always proved in his private and business life a good and useful member of the community will prove an asset to industry however he may be employed. On the other hand, it must be realized that industry imposes a degree of discipline and restriction on the individual which he may not have experienced before. With dilutee labour it is

more important than ever to fit the right man to the right work if large-scale industrial maladjustment is to be avoided.

New machinery and plant are being obtained from the United States of America, with all the attendant difficulties of trans-Atlantic transport, as well as from all possible sources at home. It would be prudent at the same time to ensure that all machinery already installed is producing to full capacity. That capacity depends not only upon the machines themselves, but also on the men and women who work them—a fact which has been nowhere so widely realized as in factories themselves engaged in mass production in peace-time.

# U.S. NAVAL RECRUITMENT AND TRAINING

By EDWARD P. MONTGOMERY

MUCH has been written on the history of the U.S. Navy, but a good deal of this literature was in the form of magazine and newspaper articles, and accounts of the standards and methods of training in that service to-day are not readily accessible. Now, however, a useful, if necessarily limited, summary of them has appeared in *The Fleet To-day*.[1] Although written more in the style of a handbook for the aspirant than a survey for the expert, this publication includes a comprehensive account of the methods of recruitment, schooling and training of the American enlisted man—not only of the ordinary seaman but also of the specialist branches, such as naval aviation.

The opening chapter deals with recruiting. The vast increase of mechanization which has taken place in all navies during the past half-century has naturally demanded a higher standard in naval recruitment. How high that standard now is in the U.S. Navy may be judged by the fact that during the year ended 30th June, 1939, 159,409 applicants were examined for enlistment, but of this number only 14,512, or 9.0 per cent., were accepted. The author contends that "it is more difficult for a young man to enlist in the U.S. Navy to-day than to enter college." Reading his account of the care which is taken by the recruiting officers in selection, one cannot fail to agree that "on the basis of character requirements, physical fitness, nativity and proportion of acceptances to applications, and exclusive only of the purely academic specifications, that contention is correct."

Recruiting comes under the Bureau of Navigation which, since 1927, has been developing what has come to be known as the "Selective Recruiting System." For purposes of recruiting, the United States are divided up into five Divisions with Headquarters at New York, Baltimore, New Orleans, Chicago and San Francisco. In each of these areas there are a number of main recruiting stations, under each of which are a number of sub-stations. In the five Divisions there are a total of 35 main stations and 259 sub-stations. These sub-stations are in charge of a Chief Petty Officer who does the preliminary examination of the recruits, which includes not only a superficial medical examination for such common defects as bad eyesight, colour blindness, lack of teeth and so on, but also includes a preliminary intelligence test. Applicants for

[1] *The Fleet To-day*. By Kendall Banning. (Funk and Wagnalls Company, London and New York.) 12s. 6d.

enlistment must be :—(*a*) Native-born or fully naturalized citizens of the United States ; (*b*) Not less than 18 years of age when enlisted ; (*c*) Of good character ; (*d*) Mentally qualified ; (*e*) Not less than 64-in. in height ; (*f*) Of proportionate weight to age and height ; (*g*) Unmarried. They must also :—(*h*) Pass a rigid physical examination ; (*i*) Qualify in general classification (intelligence) test ; (*j*) Furnish authentic evidence of age ; (*k*) Have no dependants ; (*l*) Secure written consent of parent or guardian if under 21 years of age ; (*m*) Furnish list of former employers or school teachers, or references from at least two responsible persons ; (*n*) Have no police record (except minor infractions not involving moral turpitude).

Applicants who are 18 years of age or over are enlisted for 6 years. First enlistments are authorized only in the rating of apprentice seamen at a monthly base pay of $21. All enlistments are made for general service. No promise or assurance can ever be given an applicant that he will be assigned to any particular detail or duty.

One example of the care taken in this preliminary examination should suffice. Almost the first question which the recruiting officer will ask the applicant is, " Show me your finger nails ? " If the nails show effects of being bitten the applicant is automatically rejected : U.S. navy doctors have found by experience that an unduly large percentage of men who suffer from nervous disorders of one kind or another are nail biters ; therefore the Navy will not take a chance on them. Such common defects as hare lips, cleft palates, the " presence in a marked degree of birthmarks, hairy moles and scars " on the face, enlarged tonsils, first-degree flat feet, hernia, varicose veins and impediments in the speech—some of which are correctable and a few of which might expose the victims to the banter of their associates, are all causes for rejection.

When the recruit has been favourably passed by the Chief Petty Officer in charge of the sub-station, he is passed on to one of the main stations where he receives an extremely thorough mental and physical examination and his character and history are gone into with great care. If, as a result of this, he is passed as fit for enlistment he is put on the waiting list. During the waiting period, which may be anything up to six months, the details he has given of his personal history are minutely investigated. Recruiting officers call upon the references he has given—such as his doctor, his school teacher, the local clergyman or priest—to check the statements made in his application. His fingerprints are sent to Washington where they are checked with the five million prints on the index of the Federal Bureau of Investigation, for the Navy has no use for men with criminal records. When all the investigations have been

completed and the candidate is found satisfactory, he is summoned back to the main station as soon as a vacancy occurs. Applicants are usually called up in groups. There he signs the shipping articles and is sworn in to the Service by the officer in charge in the following form: "I do solemnly swear that I will bear true faith and allegiance to the United States of America, and that I will serve them honestly and faithfully against all their enemies whomsoever and that I will obey the orders of the President of the United States and the orders of the officers appointed over me, according to the rules and articles for the government of the Navy."

At that moment the applicant changes his status from civilian to apprentice seaman, bound to service in the Navy for six years. The Bureau of Navigation is quoted as giving the following composite picture of the average man who leaves the recruiting station as an apprentice seaman to go to one of the four great naval training schools: "He is a native-born American citizen and the son of native-born citizens. He is nineteen years and six months of age. He is 5 feet 8.2 inches high, with a chest that measures 33.5 inches. He weighs 144 pounds 10 ounces. He has brown hair and blue eyes. He has had about three years of high-school education—2.88 years to be exact. The cost of recruiting him is about £15."

Depending on which part of the country he is recruited from, the apprentice is sent to one of four training stations—Newport, Rhode Island; Great Lakes, Illinois; Norfolk, Virginia; and San Diego, California. On his arrival he receives his outfit of uniform clothing and equipment. This initial outfit is a free issue (valued at about £26), but all replacements have to be paid for by the enlisted man himself out of his pay. With it the apprentice receives the canvas leggings which form part of his uniform all through his training period of four months and which earn him the traditional naval appellation for all recruits of "Boots."

At the training station "Boots" is assigned to a platoon commanded by an instructor who is usually a Chief Petty Officer. Then for four months he undergoes intensive instruction in the elements of seamanship: ship nomenclature, signalling, knots and splices, the handling of pulling boats and sailing boats, the rudiments of navigation, and how to keep himself, his clothing and his quarters clean. On his quickness and aptitude for learning these things, the recruit receives marks. On the excellence or otherwise of his marks during the four months training period will depend whether or not he is selected for further instruction in the service technical schools. If his name is among the 10 per cent. receiving the highest marks on the completion of training

he may go direct to one of these schools. Otherwise he will go to a transfer unit to await orders to a ship or a shore station.

There is little need to go into in any more than a general way what will happen to him when he is assigned to a ship. The duties, discipline, drills, and methods of training in the United States Navy naturally will differ in detail from those practised in the Royal Navy, but the principles underlying the methods employed in both Services are very similar. The English seafaring tradition is very strong and it is natural that the United States Navy should follow more or less closely that tradition from which it so directly derives, including the seaman's uniform.

But to depart from the text of this book for a moment, there are some less visible differences between the two Services. Perhaps the most important of these lies in the relationship of officers and men. In the Royal Navy, with its long-service enlistments, the Petty Officer is usually of longer service and experience than his American opposite number, and in the Royal Navy much of the responsibility for carrying out routine and maintaining discipline within the division or unit devolves upon him. For many years the enlistment period in the U.S. Navy was only four years, and the high degree of technical training given, which enabled many men to pass into well-paid jobs in civilian life at the expiration of one or two terms of enlistment, meant that there was a very high rate of turnover of personnel with a consequent scarcity of seasoned long-service Petty Officers and Chief Petty Officers. For this reason, the Commissioned Officer in the U.S. Navy finds it necessary to assume a great part of the responsibility for the training and discipline of his men. In this connection it may be useful to give, what the author omits, a brief account of the composition and qualifications of the officer corps of the U.S. Navy.

In peacetime practically every Commissioned Officer is a graduate of the United States Naval Academy at Annapolis, Maryland—an institution which, quite apart from its naval bias, is rated by many educationists one of the finest technical schools in the country. Appointments to it as Midshipmen are ostensibly political in that each Senator has five, and each Member of the House of Representatives three appointments to the Naval Academy which he can fill with boys living in his own State or constituency. In practice, however, most Congressmen hold competitive examinations in their constituencies for these appointments, so that nowadays political influence plays a relatively small part in the selection of candidates. The limiting ages for entrance are from 17 to 21, and each candidate has to pass a written entrance examination, which is the equivalent in educational standard to a college

entrance examination. The physical examination, too, is extremely searching. The four-year course through which the Midshipman must pass before he is graduated and commissioned as Ensign (the equivalent to a Sub-Lieutenant in the Royal Navy) is possibly one of the most compressed and comprehensive educations given in any institution of learning. History, English, languages, steam engineering, electrical engineering, radio and signalling, seamanship, navigation, international law, naval law, ballistics, ordnance and gunnery, aerodynamics and aviation, naval construction, are but a few of the subjects in which the Midshipman is expected to reach a high standard in order to acquire passing marks. Apart from the purely academic side of this course there are also intensive drills of many kinds, and each summer the Midshipmen are sent on a three-months cruise in battleships, during which they replace a proportion of the crew of the ship and do all the regular ship's work from firing boilers to scrubbing decks that, as officers, they will have to train their men to do. Gunnery practices are also held on each cruise, with Midshipmen manning half the ship's battery. In addition, during the cruise opportunities are given them to experience the responsibilities of command. One of these cruises is, in normal times, devoted half to service in small ships, such as destroyers, and half to a course in naval aviation. So high is the standard set that as a rule some 40 per cent. of those who enter the Naval Academy in any one class are dropped for inaptitude before graduation.

The result of this very intensive training and education is to turn out into the fleet a young officer both well equipped technically and with a fine tradition of service. The high standards which they are given at the Naval Academy are reflected in the high standards which they require of ships and crews in later life as they rise to command rank.

The enlisted personnel of the U.S. Navy are highly specialized, but the officer corps—unlike the Royal Navy—is unspecialized. An officer's term of service may include periods of duty as engineer officer, radio and communications officer, navigating officer, battery or turret officer, fire control officer, first lieutenant, and varied duties ashore before reaching executive rank. The theory is that each officer should, as far as possible, be an all-round man capable of filling any post of duty aboard ship, so that in time of battle, if the captain and other high-ranking executive officers should be killed, juniors would be capable of continuing to fight the ship. The only specialized officers as such in the United States Navy are those in the Paymaster Corps, the Medical Corps, the Civil Engineer, Construction, and Chaplains' Corps. This is not to say that many officers do not specialize in certain subjects, and indeed a good part of an officer's shore duty may be spent at the various post-graduate

schools in ordnance and gunnery, marine engineering, radio and communications, naval construction, and the like. In addition, a considerable number of officers are passed through one of the schools for naval aviation, the biggest of which is at Pensacola, Florida. Some of these officers, having served periods of duty as pilots with various branches of the naval air arm, may continue for a large part of their service in the equivalent to the British Fleet Air Arm—known by the somewhat cumbrous title of the U.S. Naval Aeronautical Organization. Others, however, in conformity with the rule of unspecialization, may return to ship service as line officers. The ideal which is aimed at is that every officer should have some practical experience of naval aviation and be a qualified pilot. This ideal has not yet been attained completely in practice, but it is probably safe to say that the U.S. naval officer corps is more strongly " air-minded " than that of any other naval service.

As has been said, in contrast to the officer corps, the enlisted personnel is very highly specialized. This specialization is acquired by the enlisted man either on board ship as a result of his assignment to special duty or, more frequently, as the result of undergoing a course in one of the numerous trade schools. *The Fleet To-day* lists no less than 63 special courses designed to fit men for various special jobs. In each of the special ratings there are various grades rising from 3rd Class Petty Officers, through 2nd and 1st Class, to Chief Petty Officer. Once specialized, a man will rise through these grades until either he reaches the rating of Chief Petty Officer or leaves the Service at the expiration of his enlistment. After the initial enlistment, which is now for six years, a man may re-enlist in his previous rating for four-year periods. He becomes eligible for retirement with pay after sixteen or twenty years' service.

This outline of the recruitment and training naturally relates to conditions in peace time; but, with the tremendous expansion of the U.S. Navy which is taking place as a result of the dangerous strategical situation created for America by the War, there must be considerable dilution. Under the present building programme, the ship strength of the U.S. fleet will be more than doubled by 1944 as compared with 1940, and in the past year personnel strength has been raised by well over 50 per cent. In some measure this increase has been met by calling up officers and men of the Naval Reserve, but their numbers are insufficient to meet the vast requirements of the expansion from a " one-ocean " to a " two-ocean " navy. Various methods of providing the required increase in both officer and enlisted personnel have been adopted, one of them being the institution of special courses for college graduates to fit them for Commissions as Ensigns. Similarly, enlisted personnel are receiving more rapid and intensive training.

It may be worth concluding with a word about discipline. To those brought up in the traditions of the Royal Navy the discipline in the U.S. Navy may seem less strict; but, in fact, this difference should be attributed to flexibility rather than to slackness. The high standards of recruitment produce an enlisted man of a type which responds better to leadership of a persuasive kind. If the discipline is different it produces a no less efficient and obedient organization. Some statistics which the author of this book gives confirm this view. During a normal peace-time year only one quarter of 1 per cent. of the enlisted personnel committed offences which warranted trial by general court martial: that is about one man in every four hundred. During the year 3.42 per cent. committed lesser offences warranting trial before summary court, and 2.47 per cent. committed minor offences which brought them before a deck court. The desertion rate is unusually small: during the fiscal year of 1939 there were only 338 desertions out of a total roster of 110,196, or about three-tenths of 1 per cent.

It would be invidious to make any comparisons between the two Services on which, as U.S. Secretary of the Navy, Frank Knox, has indicated, the safety of the seas for the next hundred years may depend. As the U.S. Navy comes more and more fully into the War, doubtless certain superiorities and inferiorities as between it and the Royal Navy will show themselves, but taking it by and large, it may be said with confidence that in courage, initiative, skill and equipment, the United States Navy will be found worthy of the great Anglo-Saxon sea tradition which is its inspiration and its derivation.

# AIRCRAFT PRODUCTION IN THE UNITED STATES

By E. SPEYER

THE United States have travelled a long way towards production on a war basis since May 1940 when Mr. Roosevelt made his appeal to American industry to mobilize its full strength for national defence; but the goal is not yet within sight. As late as the beginning of August 1941, Mr. Knudsen expressed his hope that the U.S. output of war material might reach by January 1942 about half their ultimate defence schedule as it stands at present. But since then there has been the Moscow conference and it seems probable that the present schedule will again be revised upwards.

The total defence orders allocated to American industry up to September 1941 amounted to approximately 60 billion dollars (including about 3½ billion for Great Britain), whereof about 12½ billion dollars were for aircraft, 12 billion for ships, and about the same amount for tanks, guns, etc. The present annual defence expenditure of the United States is, according to the *Economist*, about 12–15 billion dollars, and by next Spring should be about 20 billion. The same source estimates that American annual expenditure will have to rise to 30–40 billion dollars, "if the War is to be won." At the present rate of production it would take about four or five years to work off unfilled orders. There will, however, be a steep rise in production in 1942, as many new plants come into operation, and the peak will be reached in 1943.

## AIRCRAFT OUTPUT

The United States is the only country that still publishes production figures, and even so they divulge very little. The figures given from time to time for output in other countries are mere guess work. As an example of their unreliability, estimates of German production vary between a total monthly output of all aircraft of 2,500 and an output of 3,500 (2,100 first line). Senator Byrd even estimated in August last that the Germans outproduced the Allies by three to one—surely a gross exaggeration. From all the information available it seems probable that the Allies' production has not yet caught up with that of the Germans, although it may be very near to that stage; also, in view of German losses in Russia, to numerical superiority.

Pleasing though the absolute increase in figures of American military aircraft production may be, a detailed analysis gives less cause for satisfaction, especially when measured against earlier forecasts, which probably were more or less based on the production schedules (not made

public) of the Office of Production Management (O.P.M.). The following are the published figures :—

| 1940 | | 1941 | |
|---|---|---|---|
| July ... ... | 500 | April ... ... ... | 1,427 |
| November ... ... | 700 | May ... ... ... | 1,326 [1] |
| 1941 | | June ... ... ... | 1,476 |
| January ... ... | 1,036 | July ... ... ... | 1,460 [2] |
| February ... ... | 972 | August ... ... | 1,854 |
| March ... ... | 1,216 | September ... ... | 1,914 |

A few secrets have leaked out through the indiscretion of Senator Byrd with regard to the July production. The schedule for that month was 1,656 aircraft, so that the total production was about 200 below schedule. Out of the 1,460 produced, only 700 (200 less than scheduled, and 16 less than produced in June) were operational types, the remaining 760 being training aircraft. Amongst the 700 operational (combat) types were only 14 of those four-engined bombers which are most urgently needed by Great Britain ; 95 were medium bombers, and the remainder smaller aircraft. It has been said that, of the September output, slightly more than 50 per cent. consisted of combat aircraft. The proportion between combat and training types will steadily improve in favour of the first ; but, according to present schedules, at least 40 per cent. of all aeroplanes to be built will be trainers, and this will maintain even at the height of the present programme which calls for a total annual production of 50,000 aircraft by 1943. Indeed the present need for trainers is so great that they are being imported from Canada.

In the light of forecasts made earlier in the year that production would reach 2,500 aeroplanes in Autumn, it seems probable that even the September production was behind schedule. Even earlier this year, because of " bottlenecks " in raw materials and essential parts, it seemed doubtful whether the monthly production of 2,500 aircraft could be exceeded before the end of 1942. It is all the more gratifying to take note of Mr. Knudsen's optimism that an output of 3,000 will be reached by mid-1942. This does not mean that all difficulties have already been overcome ; bottlenecks still exist in raw materials as well as in component parts, and others will almost certainly arise. However, the more industrial war production comes into full swing (a process which will not be possible without discomfort to the private citizen in America), the smoother deliveries will run to the aircraft industry, especially as disruption of industry through bombing need not be feared.

[1] Decrease brought about mainly by the strike in North American aviation plants producing training aeroplanes.

[2] Decrease due to lack of essential component parts.

For the U.S. aircraft industry the year 1941 has been essentially a preparatory period, and new factories have had to be erected on a gigantic scale. Next year the leading American industry—the automobile manufacturer—is going to play a large part in making both aircraft parts and complete aeroplanes. Meanwhile, on the technical side old designs are being changed and new ones tested. Although aeroplanes cannot be manufactured off the running belt, production of approved models on a large scale is necessary if output is to be increased considerably. To a certain extent this necessitates "freezing" a type until an order is entirely completed. At present design changes are so frequent that the last product of a given order is often quite different from the first; this is particularly true of fighters because their speed, armour and fire power have to be adapted to the latest requirements of actual war experience.

The programme for the building of bombers, which early this year envisaged 2,400 2-engined and 1,200 4-engined bombers, has recently been supplemented by a new programme, the aim of which is the production of 500 heavy bombers monthly by early 1943. Among these are the "flying fortress" type and another nearly twice that size. This latter will be of approximately 40 tons gross weight with 4 engines of between 2,300–2,500 h.p., to be built by Boeing, Consolidated Aircraft and Lockheed. Douglas have tested a 70—80 ton type, which may also be put into production. Reliable data of a still larger design—to be built by Martin—are not yet available. This programme is already reflected in the recent large increase of orders to those firms who specialize in the production of heavy bombers.

The execution of aircraft orders is in the hands of about fifty companies, of which between thirty and forty make aeroplanes, ten make engines, and four make airscrews. In addition a number of automobile factories and others are engaged on aircraft orders, mainly as sub-contractors of the aircraft industry. Numerous companies make component and spare parts. About 260,000 people were employed in the aircraft industry proper on 1st June, 1941, as against only 90,000 on 1st January, 1940. During the same period the number of working hours needed for the completion of an aeroplane decreased considerably.

Although production capacity of the industry has increased rapidly, it has not been able to keep pace with the orders which have poured in. Every company has a tremendous amount of unfilled orders on their books—sufficient to give work for several years to all existing factories and to those in course of construction. At the rate of monthly deliveries in the second quarter of 1941 it will take five years to complete the unfilled orders as they stood on 1st July. Moreover, it seems probable that unfilled orders will continue to increase into 1942; but

perhaps in the second half of that year deliveries will exceed incoming orders. This must, of course, depend entirely on the war situation, although by then the increased production capacity should make itself felt.

It would have been impossible for private enterprises to carry the full burden of the necessary extension of plants which might become worthless after the War; so, in many cases, the U.S. Government have built the plants and leased them to the companies; in others, the companies have been reimbursed for their outlay.

### Leading Types

Lack of space prohibits details of the products of all the various aircraft companies; but the following should be mentioned:—

*Curtiss Wright* produce, amongst other designs, the SBC2–1, a dive-bomber for the U.S. Navy; the famous P–40 ("Tomahawk") fighter; and its younger edition, the P–40 D ("Kittihawk"). A new and faster fighter, the P–46, is not yet in production on a large scale. The new fighter factory at Buffalo will turn out 500 aircraft a month when it is in full production next year. A subsidiary concern—Wright Aeronautical—builds engines, and another airscrews.

*Boeing Aircraft* produce the 4-engined "Flying Fortress" (B17–E); also a new and much heavier bomber (40 tons gross weight), the B–29, is in the design stage.

*Consolidated Aircraft*, too, make a "Flying Fortress," the B–24, which will also be built by Ford (85 a month). The B–32, about 40 tons, is still in design stage.

*Douglas* produce the A–24 dive-bomber; the A–20–A ("Havoc") —a medium range bomber used frequently for raids on Berlin; also the B–24 (see Consolidated Aircraft). The B–19 of 80 tons, which is not yet in quantity production, is the largest military aircraft in the world.

*Lockheed* produce the famous "Hudson," well known from the many exploits of the Coastal Command. A very heavy bomber, B–49, of about 40 tons, with 4 engines of 2,300–2,500 h.p., is still in the design stage. Also there is the P–38, a very fast fighter, called "Lightning."

*Martin* build the famous B–26 ("Flying Torpedo"), a very fast medium bomber with 2 engines of 1,800 h.p.; also a light twin-engined bomber ("Baltimore" 187) for Great Britain. They also build a very heavy type of about 85 tons for the U.S. Navy, but no details of it have yet been published.

*North American Aviation* produce a 2-engined medium bomber, the B–25, and will soon produce a fast fighter, the P–51 (more than 400 miles per hour). They also build trainers.

*United Aircraft* are the biggest manufacturers of engines and airscrews. The Vought-Sikorsky section also build aeroplanes, among which are a dive-bomber (156), and a new fighter said to be the fastest army fighter built in the United States.

*Ford* are the only automobile manufacturers who will produce entire aircraft. In addition, they will supply parts to Consd. Aircraft for B–24s.

*General Motors*. The Allison section is one of the three most important engine manufacturers. The Chevrolet and Buick sections will make parts for North American Aviation's B–25; and the Fisher section will make airframes for the same company.

*Chrysler, Hudson Motors* and others will work for Martin's B–26 production.

*Packard* build engines under a Rolls-Royce licence.

*Sperry* build instruments for aeroplanes, including bombsights and anti-aircraft searchlights, etc.

*Bendix* produces all kind of aircraft components.

To the above list should be added such firms as *Fairchild*, making military cameras and other optical instruments for military use; *Brewster*, producing a dive-bomber (340) and the "Buffalo" fighter, in use in the East; *Republic Aviation*, building the P–43 and the very fast P–47 ("Thunderbolt"); *Bell*, of "Airocobra" fame; *Grumman*, producer of the F4F–3—a fighter much in use with the U.S. Navy; *Northrup*, making seaplanes used by the Coastal Command, especially for anti-submarine duties of the Norwegian Air Force; and *Vultee*, making fighters, dive-bombers and trainers. Other firms build exclusively training aircraft.[3]

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[3] The following are the designations used for U.S. Service aircraft:—

U.S. Army Types

There are three main types known as trainers, fighters and bombers. They are designated respectively by the letters T, P—Pursuit, and B. Special purposes are indicated by another letter, *i.e.*, DB = dive-bomber; BT = basic-trainer. A number following the letter(s) is the number of the type, *e.g.*, P–43 means the 43rd fighter type built for the Army. A letter following the number indicates that certain changes from the original type have been made; for instance P–40 E.

U.S. Navy Types

The designation of U.S. naval aircraft is more specific and gives information about four things—the type; the manufacturer; how many types for the same purpose this manufacturer has built; and how many changes of the type have been made.

The U.S. Navy follows the British practice and calls "Pursuit" aircraft "Fighters."

Both the Army and Navy give types which are in an experimental stage the prefix X. The makers are designated as follows: A = Brewster, B = Boeing, C = Curtiss, Y = Consolidated, F = Grumman, M = Martin, U = Vought. Example: XSB2C–1 = X (experimental), S (scout), B (bomber), the second such type built by C (Curtiss), with one major revision from the original.

## Restrictions on Output

So many parts are required for the completion of an aeroplane that it is not at all surprising that delays in production have been mostly due to the lack of some minor but essential part. For example, an order for fifty medium bombers could not be completed in time because engines and turrets were not available. The production of Glenn L. Martin in the second quarter declined considerably because of shortages in engines, airscrews and certain castings and forgings. The production of the B–26 was held up through lack of landing gears. Deliveries of 187s to Great Britain were curtailed through shortage of aluminium. These are some of the difficulties mentioned in the report of only one factory, and it is probable that it was no exception.

This does not imply reproach to any of the many participants in aircraft production, for the transition from peace to war production is not easy.

The development of the American aero-engine industry has been remarkable, even though there has sometimes, especially last Spring, been a definite shortage of engines causing delays in aircraft production. When war broke out the situation in this industry was as follows: Pratt & Whitney, a United Aircraft subsidiary, produced engines of a total of 250,000 h.p. monthly; while Wright Aeronautical, a Curtiss subsidiary, produced about 265,000 h.p.; there were no other manufacturers of high-powered aircraft engines. Allison, now the third largest producer, did not play any part before 1940. Yet in July, 1941, Pratt & Whitney produced 1,600,000 h.p.; Wright Aeronautical 1,750,000 h.p.; and Allison about 600,000 h.p.

The automobile industry is already playing an important part in the production of aero-engines. Next Summer the monthly production will be about 6,000 engines with more than 6,000,000 h.p., and on the peak of the present programme (which may be revised upwards) in the Summer of 1943 it will amount to 12,500 engines or 14,300,000 h.p. There was a shortage of engines last Spring, especially of the Allison type, for fighter aircraft, but no shortage has been reported in July and August.

There seems still to be a scarcity of airscrews. About 75 per cent. are made by Hamilton Standard, a United Aircraft subsidiary; the remaining 25 per cent. by Curtiss. The strike at the Curtiss Caldwell plant earlier in the year was a severe setback for aircraft production.

A difficult situation continues to exist in the machine tool industry, which is the most important auxiliary industry of the whole defence production. No factory can produce unless it is provided with the

necessary machinery and tools, and toolmakers have been working to capacity for years. The total output of this industry has risen from 200 million dollars a year in 1939 to 750 million in the current year. Next year's production will run into the billion mark, and yet not be sufficient.

Most serious of all seems to be the position with regard to certain metals. There is already a shortage of copper and nickel; but the worst shortage is of light metals, such as aluminium and magnesium. Aluminium is essential to the aircraft industry because it weighs only about one-third of steel, and alloyed with other metals, has 90 per cent. of the strength of steel. No aluminium is available now for civilian purposes, and there seems not to be enough for military needs. American production of aluminium has risen from 327 million pounds weight in 1939 to 412 million in 1940, and will amount to about 700 million in 1941. Present needs amount to between 60 and 70 million pounds a month, and it will be extremely difficult to satisfy them. The capacity of existing plants cannot be raised beyond 800 million pounds. Estimates for 1942 needs are at least 1,200 million pounds. If the Douglas B–19 or any other great bomber should be produced on a large scale requirements will be still higher. In order to meet these demands the U.S. government is going to erect seven new factories with an annual capacity of 700 million pounds. It will, however, be some time before these factories will be able to produce and it is, therefore, difficult to see how the aluminium scarcity in the earlier part of 1942 can be overcome.

Quite as bad is the position with regard to magnesium which is used as an alloy with aluminium for specially tough aeroplane parts, and also for incendiary bombs.

A secondary problem in the increased production of aluminium and magnesium is the additional electric power required.[4] To meet this a new agency has been created by the O.P.M., which is authorized to reduce non-important use of power, if necessary by rationing. Interconnecting lines which will combine existing facilities in certain districts will help to mobilize all reserves. In addition, the power-producing companies have been asked by the Government to embark upon an expansion of their plants.

Whether the United States formally declare war or not, it must be evident already that this is their war, just as much as it is Britain's, and therefore everybody in that country is in it to a greater or less extent. But it seems to be a long step from the perception of this simple fact to the realization that it must have certain consequences upon the private life of every citizen. Consumption of civilian goods is soaring

[4] It takes about 10 k.w.h. to make one pound of aluminium.

in the United States, and although the defence industries enjoy priority rights with regard to certain raw materials, semi-fabricated and manufactured goods, there is strong competition between production for civilian purposes and that for defence. This competition is often fought in the capitalistic heart of the manufacturer whose profits on production for civilian use are much higher than those on defence production, and who, like many manufacturers in this country, thinks of post-war business and wants to maintain his peace markets. The working man, too, although he realizes that he and his wife and family may have to go without certain things for some time, has not yet realized the necessity for reducing his standard of living at a time when he is making more money; he is inclined to think that he will be able to buy other goods instead of those which are disappearing from the market. So far, the U.S. Government have not deemed it wise to increase the tax on the incomes of the mass, and the appeal to the small investor to buy Government Bonds has met with only a modest success and hardly reduced the purchasing power of the public at all. Efforts are even being made to find means to encourage production in several consumer industries and so to divert that part of the public's money which can no longer be spent on motor cars, private aeroplanes, refrigerators and new houses.

Totalitarian thinking is alien to democracies; yet, in a war against a totalitarian Power which is directing the vast economic resources of a densely populated and highly industrialized Continent towards one purpose only—the destruction of those democracies, totalitarian thinking is essential for those democracies if they wish to survive. Neither Britain, where the truth has been realized late, nor even the wealthy and prosperous United States are rich enough to produce all the armaments needed for the struggle against such a formidable enemy and at the same time maintain, much less raise, the general standard of living. This fact will become more and more obvious as time goes on, and it will be seen that a considerable reduction in production for civilian purposes is imperative in order to set free materials and working power for war purposes.

## AMERICAN SHIPPING EFFORT[1]

AMERICAN shipbuilding is naturally the part of her effort which is of the greatest interest to Britain at the moment, considering how the Democratic cause is benefitting by her efforts. There is, therefore, great comfort in the declaration made by Mr. Harry Hopkins, supervisor of the American Lease and Lend Programme, when he arrived in London; among other things he pointed out that his country had begun the biggest programme of shipbuilding considered in any country at any period of history: rather more than one million tons of new shipping is being completed this year, at least six million tons in 1942 and substantially more than that in 1943. These are colossal figures, and show how Germany, staking her all on the war against British and Allied merchant shipping, is pitted against a tremendous time factor which may have had something to do with her attack on Russia.

The latest American return of ships under construction or definitely on order mentions 198 ships for the U.S. Maritime Commission, mostly tankers and fast cargo liners, 384 for the emergency programme of "ugly duckling" tramps of 10,000 tons deadweight, 86 for private shipowners and 60 sisters to the "ugly ducklings" for the British Government. This is a total of 728 ships of approximately 5,725,000 tons gross.

### Tramp Type Ships

The "ugly duckling" type—a phrase coined by President Roosevelt which does not really seem to be deserved by the ship's appearance according to published plans—are particularly interesting, for they are being built entirely for the benefit of the Allies who are actually fighting Germany. The Bethlehem Company is building no less than 62 of these ships, the California Shipbuilding Company 55, the Oregon Company 43, the Houston and North Carolina yards 37 each, the Delta Shipbuilding Company and the Richmond Shipbuilding Company 24 each, the South Portland Yard 16 and the Alabama Yard 13. Naturally enough, the large number of ships built of precisely similar type saves an immense amount of time and labour in construction. Every possible means is taken to secure rapid delivery; the results may not always be artistic, but they certainly look like being effective, although allowance must be made for the fact that practically the whole programme has to start from zero, so that we must not feel disappointed if there is a certain amount of delay in the beginning.

These "ugly ducklings," both for the American flag and the British, do not pretend to be as fine looking ships as the fast cargo liners built

[1] Reproduced from an article in the September issue of *The Nautical Magazine* by courtesy of the Editor of that publication.

by the Maritime Commission, but they are good, practical looking vessels. The hull is flush-decked, with very conspicuous relieving ports in the bulwarks forward and aft. The stem is straight, set at a fairly sharp angle, and the stern is a modified cruiser type in which the desire to get all the practical advantages of the cruiser stern have been carefully balanced with the necessity of cheap and rapid construction with mixed labour. Three tall Samson posts on the centre line, two forward and one aft, take the cargo derricks, and each is surmounted by a biggish cross-trees for the leads and lifts. The wireless aerial runs from the foremost and aftermost of these Samson posts to a tall light pole mast stepped through the bridge. The midship superstructure is of modern American type, very square and high. It extends for a considerable distance over the main deck, with two typically American boats under modern American davits on either side, but above that it is very much shorter so as to provide the officers' accommodation, etc., round the short, stout funnel. The bridge is arranged in the ordinary way but over the wheelhouse. Instead of a monkey island, there is a full length light upper bridge, entirely open, stretching from side to side of the ship.

These ships have dimensions 416 ft. × 56 ft. 10¾ ins. × 37 ft. 4 ins. depth of hold, giving a gross tonnage of about 6,800 and a deadweight capacity of 10,000 tons. The machinery is as simple as possible, because it takes so much longer to build than the hulls; consists of triple expansion engines and Scotch boilers giving enough power for a speed of 10½ to 11 knots.

The sixty British ships, and at least a very large proportion of the Americans, are to be all welded instead of rivetted, and it is expected that this will not only result in a very considerable saving of time, labour and material, but will also improve their performances at sea. Until now most of the all-welded ships afloat have been of the tanker type, avoiding the rapid corrosion round the rivet heads, but there is no reason why the cargo type should not prove equally successful. It may not be equally easy to build them in Britain where the shipyards have been laid out for rivetted construction and where there is no time to reconstruct them completely; but the Americans are building most of these ships in entirely new yards and there is not the least reason why they should not be prepared for welding from the very beginning and so save a great deal. Not only does the smooth welded hull, like that of a racing yacht, offer far less resistance to the water in its progress, but a lot of steel will be saved on the rivets and overlaps. Another very possible advantage is in the loosening of rivets by the explosion of mines or air bombs close to the ship. This has sent any number of ships into dockyard hands for re-rivetting, but nothing has been made public concerning

the behaviour of all-welded ships in similar circumstances, although it is obviously of great technical interest.

The town of Richmond, on the East Coast of San Francisco Bay, is very conspicuous in the " ugly ducklings " programme. The Richmond Shipbuilding Corporation is, as has been mentioned, building a number of these ships for the American Government, while close by is the yard of the Todd-California Shipbuilding Corporation, which is one of the two designed entirely to build the ships ordered by the British Government. Ground was broken for the construction of the first of the seven slipways in this yard early in January, and 78 days afterwards the first keel was laid. The Richmond Shipbuilding Corporation's yard is also a new one and is to have six slips, its site on the open bank of the bay next door to the Ford works. This land amounts to 200 acres and, apart from the construction of the actual plant, a good deal of rock surfacing work has to be done as well as dredging work off the waterfront. It is anticipated, however, that the work will be carried out very rapidly and that the site will very soon be producing ships.

The tanker section of the U.S. Merchant Service is, as might be imagined, particularly busy at the moment, and the Secretary of Commerce has been empowered to raise the load line of tankers in order to permit them to move more cargo, although he is strictly forbidden to go beyond the actual safety line. For many years the Americans objected to the institution of the load line on the coasting trade, although their other safety rules were particularly stringent, and any number considered that the authorities were over-cautious in the case of tankers.

## Repair Work

The repair yards have done some particularly praiseworthy and rapid jobs on the twenty-eight Italian and two German merchant ships which were taken into protective custody. Their crews did all the damage that they could, but the American establishments were quite ready to put things right and they have done it in extraordinarily rapid fashion. The officers of British ships which have undergone repairs in American yards since the outbreak of war have been full of praise for the manner in which the jobs have been carried out. The organization is particularly complete and it will make a very interesting story when it can be described in full after the War. The repairs carried out in these damaged ships have their parallel in the late war, when the German crews did all the damage that they could when the United States joined the struggle in 1917. At that time the jobs took very much longer than they do now, but they gave welded repair work its first big chance and drew the attention of the whole world to its possibilities.

### Enemy Ships

With regard to the taking over of these enemy ships by the United States, Britain has waived all her belligerent rights, as a grateful acknowledgment of American help, but this is not to be a precedent for other countries which have been trying to arrange dummy transfers of German tonnage to their flags—transfers which cannot be acknowledged by the British in any circumstances. Many of the seized Axis ships are to go on to the coastal and intercoastal trades—sections which have been particularly hard hit by the withdrawal of merchant ships for naval and military purposes. The conditions in these trades are not so onerous as they are on the overseas services, largely on account of the Reservation Laws, which go back to the very beginning of American shipping, and there is plenty of business waiting for them. Not only have the coastal and intercoastal fleets been depleted by the demands of the U.S. Services, but a number of their ships were sold to Britain before the passing of the Lease and Lend Act.

### Tugs

It is not only in ocean-going cargo ships that the American Merchant Service has been able to help Britain. Mr. Edmund Moran, the President of the well-known New York tug-owning firm, whose funnel with the big white " M " on the side is so familiar, has undertaken to find forty American tugs which can be spared from their own services and transferred to Britain through the U.S. Maritime Commission. The Americans own a very large number of tugs, but it must be remembered that their own demand is enormous, especially in war-time, and a big proportion of the vessels on their list are unsuitable for crossing the Atlantic and joining the British service. Even the big tugs, very highly powered, are quite different from British practice. They still have the long deckhouse which has been universally adopted in their design ever since they took measures to provide a high fiddley for safety purposes in the middle of the XIXth Century. This long deckhouse still remains and it entails putting the towing hook—or in most of their tugs a towing engine or towing bitts—very much further aft than in British tugs. The risk of girding is reduced by the comparative length of the tug and the shape of the hull, but, as was proved in the late war, British tugmen will find that American tugs want a good deal of getting used to. Nevertheless, their help will be exceedingly valuable.

### Tankers [2]

The Imperial authorities have released some information concerning the large number of British tankers which have been sunk, and quite a

[2] Extracted by courtesy of the Editor from a further article on the " American Shipping Effort " in *The Nautical Magazine* for October, 1941.

number of American ships have now been diverted to the British service. Fifty have already been allocated and a further hundred are earmarked at the time of writing. These allocations, and the increased demand for oil and petrol in the Eastern States which is normally seaborne to the extent of 95 per cent., has caused a shortage of American tankers and there are some important pipe line schemes under way. The pipe from Portland, Maine, to Montreal is already under construction and there is a far more ambitious scheme to lay a line from the South Western oilfields to New York. If this is carried into effect it will make a very big difference to the American tanker business.

The President of the Standard Oil Company has published a scheme which has been set on foot by the American oil interests to establish a co-operative yard for the construction of tankers to standardized designs. It is to be designed for a capacity of 36 ships a year and it ought to have a very fair chance of success, considering that most American tankers are on spirit work and their corrosion is considerable. In the meantime the American estimate of new tankers to be delivered is 250,000 gross tons this year, 600,000 gross tons in 1942, and 500,000 in 1943, with an additional tonnage which is beyond prophecy to be laid down under various new schemes.

It is unfortunate that this shortage of tankers and the possibility of petrol rationing in the Eastern States, where there are so many motor cars, has been used as a handle for the spreading of a number of anti-British rumours which have done the democratic cause a good deal of harm—for it must be remembered that not every American is in favour of that cause. For many weeks American cities, especially Washington and New York, have been flooded with rumours that Britain is using the Lease-and-Lend materials, especially the tankers, for her own commercial purposes instead of for furthering the War. The story that has been circulated is that we are using our own ocean-going tankers in normal commercial trade, and those which the Americans have lent us for the war effort. They complain that although the British authorities have denied this they have not given a detailed statement as to where and how our own tankers are operating. That is not surprising, considering that most of those who are forcing the question are either openly, or covertly, in sympathy with the Germans and the detailed information would soon be passed on to them and would only lead to the destruction of these tankers and the drowning of their crews. Full information has, needless to say, been afforded the U.S. Navy and Government whenever it has been asked for.

# AUSTRALIA AND JAPAN

By Donald Cowie

AUSTRALIA has been subject to periodical invasion scares ever since Japan became one of the first-class naval Powers. These scares reached a climax with the open adherence of Japan to at least the political philosophy of Germany, and with her steady penetration southwards culminating in the occupation of potential bases in Indo-China. To many Australians this distant menace has become analogous to the "Russian steam-roller" in former western eyes. Politicians with psychological insight have encouraged the phobia, while elsewhere in the world there is a tendency to assume that Australia would fall an easy prey to a powerful invader from the North. It is the object of this article to review the strategic situation of the Dominion and to see the danger of an invasion of Australia in its true perspective.

There are large-scale maps of Australia, Japan, the Dutch East Indies, and of other parts of this strategic area; but in the ordinary atlas a map of the Pacific basin as a whole is necessarily diminutive in scale, and to the casual eye the distance of Japan from Australia does not seem considerable. In reality, though, that distance is greater than the span of the North Atlantic Ocean: approximately 3,500 miles separates Tokyo from Cape York—Australia's extreme north-easterly point; from Sydney to Yokohama is 3,457 miles.

Given the necessary shipping, and assuming freedom from naval and aerial interference during the voyage, it would not, theoretically, be impracticable to transport an invading army and air force over that distance. Bases in the Pelew and Caroline Islands—about 1,200 miles from Australia, and in the Marshalls, some 2,500 miles distant, could be used for rest-calls and for replenishments of supplies. In that way it should be possible to carry an army of, say, 100,000 men to Australia from Japan, and to sustain it afterwards. There are two routes available for such an armada—one down the open ocean, skirting Guam and the Carolines, and making Western Australia via the eastern end of New Guinea; the other leading much nearer the Philippines and through the maze of islands to the West of New Guinea via the Banda Sea to North Australia. Both these routes would bring the expedition frequently within range of British, American, Dutch and Australian warships, submarines and aircraft, operating from advanced bases in the Philippines, Guam, the East Indies, New Guinea, and North Australia,

with the support of main bases at Singapore, Hawaii and Sydney. Even if the defending forces were insufficient to engage in major naval and air actions, they would certainly be able to interfere appreciably with the enterprise.

The Germans, themselves, have demonstrated that the North Pacific provides ideal cover for surface raiders, and nothing short of convoy by the larger part of the Japanese Navy would guarantee the safe arrival of such an expedition. It would be useless for the armada to attempt evasion by sailing in separately routed groups ; unless timing were perfect, these would be repelled too easily on arrival at their Australian objective. As has been stated, and as subsequent remarks will explain, an expeditionary force of at least seven divisions, or about 100,000 men, with proportionate air support, would be needed to establish a certain foothold in the populated parts of the Dominion. Calculated on the accepted basic requirement of one gross ton in displacement to each transported fighting-man and his equipment, the transport of such an army and air force would need no less than a hundred merchant ships of an average tonnage of 10,000. The vulnerability of such a convoy or close procession of convoys to underwater, surface and aerial attack would be great, even if the Japanese could spare so much shipping while the China war is still in progress. Those are some of the realities that would have to be faced by the Japanese High Command before launching such an enterprise.

But these are only the problems of the transportation of the expeditionary force. What about those of the actual invasion ? Again the nervous have their nightmare vision of unreality : they point to the small population of Australia—7,000,000 souls in a continent 2,974,581 square miles in area with a coastline of some 13,000 miles. Empty areas in the North are cited as possible sites where an invader could disembark without much interference and concentrate his forces to march on undefended towns and rich cities. Sea-borne air attack, they fear, would quickly impair the capacity of the Australian forces to maintain an organized defence. Above all, it is the size of the navy, army and air force of Japan by comparison with those of Australia that preys on the imaginations of those who assume that the greater part of that country's armed strength would be employed in an invasion. Yet realization of the difficulties of transporting an expeditionary force of even 100,000 men should dispose of that apprehension, apart from the fact that Japan is already deeply committed to maintain vast forces in China and in garrisoning Korea and Manchuria, and to supporting a smouldering front with Russia and Indo-China. In such circumstances it would be difficult for her to spare even those seven divisions for an Australian adventure.

Nevertheless, even 100,000 men might not effect a military conquest, and at once would arise the alternative of providing unlimited reinforcements or withdrawal and all the loss of face which that would imply. Japanese success can only be assumed if it is taken for granted that Australia does not possess the requisite mobile army, air force, weapons and equipment to meet the invaders on equal tactical terms. In the light of recent European and Chinese experience, the strength of that army would have to be about three times that of the invading force, or some 300,000 men. If the Japanese brought two aircraft carriers with some eighty aircraft each, the defenders would need at least double the number of first-line machines to be reasonably certain of repelling the air attack. Army equipment would have to include a modern sufficiency of tanks, automatic small-arms and quick-firing guns, motor transport, railway rolling stock, ammunition. The main ports would have to be defended with long-range fixed batteries, and there would have to be no lack of mines to sow in coastal waters.

A few years ago the lack of many of these requirements might have favoured an invader. At that time, Australia had only the cadres of an army, a skeleton air force, and out-of-date equipment without the local means to modernize and expand it. Since then a great improvement has been effected, and although exact figures are no longer published it may be said that most of the conditions cited as necessary for the repelling of an invasion have been fulfilled—in some cases several times over. Before long the Dominion will have a total of approximately 500,000 men under arms in all her theatres of war; a Government spokesman has revealed that the Australian forces overseas in March, 1941, amounted to four divisions. That figure showed approximately what strength was being maintained by Australia within the Dominion. The Australian Air Force to-day, excluding permanent, administrative and technical staffs, consists of some 35,500 men, compared with only 2,000 on the outbreak of war, and many thousand modern aircraft, compared with a few hundred in 1939. The first plank in the defence policy of the Australian Government has been local defence—a radical change from the policy of the War of 1914–18, when Japan was an ally in the Pacific. As for equipment, the Dominion is completely self-sufficient to-day in many respects: she produces Bren guns, 25-pdr. "gun-hows," 2-pdr. anti-tank guns, anti-aircraft artillery, and modern aircraft; and she is about to manufacture the tanks for an armoured division. Her output of ammunition is prodigious. Last year she was able to send no fewer than 70,000,000 rounds of small-arms ammunition to Britain after providing for her own needs and for those of friends in the Pacific, the Middle East and Africa. All her main ports and many

other coastal localities bristle with modern long-range guns and are formidable with booms and anti-submarine defences ; while so many mines have been turned out by Australian factories that it has been possible to send a large number to Britain.

Even if a Japanese expeditionary force should safely run the gauntlet of naval and air interception in the North and reach Australia, it would have an all but impossible task to effect an immediate landing and to maintain a foothold. It is unnecessary to discuss here the naval dispositions to meet such an attempt ; but it is known that the Australian military scheme of defence is based primarily upon the modern principle of extreme mobility. Railways and good motor-roads run along most of the eastern and south-eastern coastline ; while the Cape York Peninsula and the Northern Territory could be left, almost for any length of time, to defend themselves. The importance of geographical factors in warfare are, even to-day, not always appreciated : those northern parts of Australia, which seem so dangerously empty and exposed to invasion, are, in fact, only empty and exposed because they have hitherto defeated man's attempts to master them. Admittedly armies can fight efficiently to-day in the Libyan and other deserts ; but they can only do so because men have preceded them to make roads and establish supply depots. For a Japanese expeditionary force the northern part of Australia would be like a virgin Libya (with a rather moister and more treacherous climate) ; and the Japanese have hitherto displayed a conspicuous distaste for pioneering. Even if they did land in an empty country, it would take them longer to re-form, establish depots and move off than it would for the Australian High Command to put the machine for defence in motion. Wireless stations now ring Australia, and would play their part in ensuring that if an invader did land, a far stronger force of Australians would quickly be marshalled and on the way to meet him.

So it seems fair to assume that so long as Australia continues to enjoy her present strategic isolation and high state of local preparedness, this fear of invasion should and can be scouted. But there are other and more real dangers, less sensational, but more insidious for Australia to meet. Fortunately the Dominion's Government has realized this, otherwise it would not have sent considerable reinforcements to join the British and Indian armies and air forces in Malaya.

The naval and military rulers of Japan have been trained in the German school. That school teaches two main principles, firstly, the doctrine of gradualness ; and, secondly, the strategy of the overwhelming blow at the chief centre of remaining resistance. From that aspect Australia has nothing to fear for a long time, but then she has everything

to fear. Strategically, Japan can only hope to reach her if she has first secured or neutralized Hong Kong, the Philippines, Siam, Malaya, the Dutch East Indies, and New Guinea. Hong Kong and the Philippines, it should be noted, have already been partly by-passed, and Siam is now open to direct attack from Indo-China; while Malaya and the Dutch East Indies are also vulnerable to air attack from the same base.

The Australian Government cannot afford to rely either on Pacific politics or on the successful outcome of British and American naval and military schemes for the defence of the Pacific. They must prepare for all contingencies, no matter what other politicians or allies may be doing. While a direct onslaught upon the Dominion is as unlikely at present as it would probably be impracticable, such an operation could be envisaged for the future if, say, the likely invader were permitted to continue his process of gradual penetration southwards. A successful Japanese assault upon Singapore would at once uncover the Dutch East Indies and New Guinea. Established in those islands, the aggressor would be able to mount a really formidable invasion plan. If Singapore fell, the Japanese would also have little difficulty in occupying the Philippines, for one result would be that the United States Pacific Fleet would have no nearer base than distant Pearl Harbour. The Solomon Islands, the New Hebrides and New Caledonia—not to mention New Zealand—would fall an easy prey to light expeditions. Thus the Japanese would have Australia completely covered from their own side and would be able to mount their final offensive at leisure and without fear of interference.

The wisdom of sending Australian reinforcements to Malaya is therefore apparent; for the successful defence of the Dominion against Japan depends fundamentally upon the potential offensive-defensive strength of Singapore. Similarly the defence of Australia against Germany and Italy depends upon the integrity of Britain and the security of that region known as the Middle East; hence the sound judgment of despatching Australian forces to Britain and Egypt. Indeed, the strategic situation of the Dominion to-day is curiously similar to that of the United States: a German attack upon North America would be out of the question at the moment, but if Britain (Singapore) and Spain, the Azores and Dakar (equivalent to the Dutch East Indies, New Guinea, the Philippines) fell, the United States would be finally exposed.

These considerations do not absolve Australia from the necessity of preparing local defences. If Japan entered the War on the Axis side, she might not invade Australia, but she would certainly interfere with ocean communications, and she might raid the eastern cities of the

Dominion from the air. The Japanese navy is strong in submarines and light cruisers suitable for commerce-raiding. Under the pretext of fishing for pearl and bêche-de-mer, Japanese agents have for a long time been penetrating into the Moluccas, the Bismarck Archipelago, and even Australian waters. The Pelew, Caroline and Marshall Islands would doubtless afford perfect little bases for raiders to cut Australian sea communications with Singapore via Darwin, and make it necessary for the routes to that base, to India, Suez, South Africa and America to be diverted far and expensively into the Antarctic South. Australia's further capacity to reinforce Malaya and the Middle East, and to strengthen her own defences with imported materials, would thus be impaired.

The danger from air attack is not so evident. Certainly long-range bombers could just reach Brisbane with a full load from the Pelew Islands and return. If Japan occupied New Caledonia she would be able to bomb Brisbane from only 800 miles away. Aircraft carriers could *attempt* a raid on Sydney itself, employing the technique of our own recent raid on Petsamo. The recent arrangement between the Japanese and Portuguese governments for the establishment of a Japanese air-line to Timor may bring land-based bombers to within 800 miles of Port Darwin, although the Portuguese government may be expected to refuse the granting of warlike facilities on their islands. But the Japanese aircraft would always be easy prey at such distances to Australian interception, and their bombs would do little more than relieve conversational tension in the beleagured continent.

Politics have been avoided in this survey, even geo-politics. It might be as well, however, to mention one point: the popular idea is that the Japanese greatly envy Australians the possession of their continent and covet especially the "wide open spaces" which the Australians and British, too selfish and fond of eugenic practice, have failed to occupy or develop; but this may not be true. The Japanese are not by nature a pioneering people, and they already possess ample territorial scope for their colonial ambitions. Moreover, the Australians have not, in fact, failed to make use of their "open spaces": they have made a wonderful job of developing most of the areas capable of sustaining human life, and the rest of the continent is, at present, useless save to natives and dingoes.

If the Japanese expansionist movement has any real object beside that of military and naval glory, it is to obtain those commodities which their country lacks. Those are, most conspicuously, oil and rubber, and they are not to be found in Australia; but they do exist in Malaya and the Dutch East Indies.

The position may be summarized as follows : an invasion of Australia by Japan at present would be a difficult and dangerous, if not an impracticable operation ; moreover, it would be pointless, for there are other nearer territories which would be far more worth while invading. If, however, Japan successfully invaded those territories and became involved in war with the British Empire and the United States, Australian communications might be seriously impaired by raiders ; moreover, the occupation of those territories would greatly increase the vulnerability of Australia to invasion.

# HYGIENE AND THE MARCH

By Major Frederic Evans, M.B.E.

In spite of the mechanization of the Army, marching is still the most essential means of locomotion for the soldier. Training in marching and in march discipline is therefore important. Just as the practice of hygiene is necessary in the camp and the bivouac, so is it part also of discipline on the march and associated with training for the march.

The recruit is prepared for the march by intelligent training after he has been selected as physically fit for his arm of the service. Before the war there were centres where recruits who were borderline cases were given special diet and suitable physical exercises to bring them up to standard. These centres did very successful work, but their functions have now, to some extent, been relegated to the training units themselves, where the medical officer is able to advise on any special action or treatment for recruits who may temporarily be below par.

Just as right training is necessary for any sustained physical effort such as that involved in our national sports and games, so is it essential for marching. Marching is a communal act in which the soldier has to adapt his stride and pace to an average. He has to develop a rhythm in his movement so that the platoon, company or battalion moves along as a body and not as a collection of heterogeneous individuals.

The average length of a man's pace is about 27 inches, but the quick step of the British Army, except for certain Light Infantry units, is 30 inches. When " stepping out," the pace is lengthened to 33 inches, but the rate is not altered from that of the quick step which is 120 paces per minute. " Double time " means the lengthening of the pace to 40 inches and increasing the pace rate to 180 per minute. The ground covered in the three rates is 100, 120 and 200 yards per minute respectively. " Double time " is very exhausting and should rarely be used except in emergencies. It is better to lengthen the time allocated to the march than to increase either the length of the pace or the number of paces per minute.

The rate of the " quick step " varies slightly in different armies. The German pace is of 31½ inches with 115 paces per minute. French infantry used to employ a short " flexion step " where the feet were not raised much from the ground and the body was held in a forward leaning position just like the poise of the trapper or the scout in the forests of North America. The rifle was then carried at the trail. The normal British quick step gives a speed of about three and two-fifth miles per hour.

How far can a unit march when fully trained? Historic examples of famous marches will help us. Friant's Division marched 78 miles to Austerlitz in 46 hours. Napoleon's Grande Armée marched from Boulogne to the Rhine, a distance of 400 miles, in 25 days, that is an average of 16 miles per day. For a division, 20 miles in one day is a forced march, and 15 miles in a day would be good going, that is about two miles per hour as an average. For a battalion three miles an hour, and for a brigade two and a half would be creditable performances. But to-day one reads in the Press of extraordinary marches performed by our shock units and reconnaissance troops. Sixty miles in 24 hours has been claimed for one march. Normally, 25 miles per day would be a forced march, and 30 miles a maximum.

For such performances, well planned training is essential. Experiments have shown that the young recruit may show an increase of as many as 72 beats in his pulse rate after a stiff march, accompanied by a rise in body temperature of about 2.2° F. After only three weeks of sound training this drops to an increase of 28 in the pulse beat and of 0.6° F. in temperature—just enough to provide for the increased demand of energy required by the march. These figures show clearly the value, physiologically, of graduated training in marching. There appears, however, a tendency to-day to encourage the men to swing their arms too high. The correct height is for the hand to reach up to and not above the waist line. The arms should not be held too stiffly.

The care of the soldier's feet is one of the most important ancillary activities in his training. Regimental officers have to inspect the men's feet regularly and to refer abnormal conditions to the regimental medical officer and the regimental chiropodist for expert advice and treatment. The Army Manual of Chiropody is an admirable sixpennyworth for all concerned with the soldier's feet, and it should be available for reference to every officer and non-commissioned officer in the Army. Sore feet can increase the energy demands on a march by as much as 20 per cent. and raise the body temperature by 1° F.

The use of well-fitting boots is of obvious importance in this connection. Army boots have been designed to protect the feet, to give in them full play for the toes and to be sturdy enough to stand the rigours of the campaign. They should be fitted with the soldier carrying a load equivalent to full marching order. Every quartermaster's store should have some loaded packs of this weight, which the men can easily slip over their shoulders when trying on their new boots, for only thus can possible points of pressure be discovered and one cause of sore spots on the feet avoided. Both the pairs of boots with which the soldier is issued should be " broken in," although one pair may then be kept for

special occasions. For field service dubbin is better than blacking, although modern blacking does not harden the leather as the old blacking used to do. Obviously, Army-pattern boots and Army socks should be worn.

As to socks, the fitting and care of these is another ancillary which makes for successful marching. The socks should not be too tight nor too large. They must provide enough room for the toes to move freely within the blocked toe of the Army boot. They should be washed regularly and in an intelligent manner. Socks should be soaked and kneaded in soapy water rather than beaten and rubbed against hard surfaces. This latter practice leads to " felting " and causes thin spots which will soon become holes in the socks. When being rinsed and dried, kneading rather than screwing up the socks should be the method, for this keeps the natural pile on the wool, avoids felting and thin spots. Frequent washings done in this way will not harm the sock, and are much better than strenuous washing at longer intervals. Holes in socks should be carefully darned so as to leave no hard lumps to cause abrasions on the feet of the wearer. The soaping of heels is also advocated to prevent such abrasions.

Much attention has been given to the proper clothing used by the soldier on active service. It must be unobtrusive, as the field grey of the Germans, the horizon blue of the French, the grey green of the Russians and the khaki of the British and many other countries serve to illustrate. There must be freedom of movement and protection against heat and cold. Air spaces are therefore provided, and the day of the tight-fitting uniform on active service is over. There must be no tight spots and no chafing. The modern battledress has been evolved to produce these effects, and it has done so very successfully. It can be opened up easily for ventilation ; it is loose, with contained layers of air as insulation against excessive heat or cold. The gaiter is an improvement on the puttee, which was heavier and was apt to constrict the circulation of blood in the legs.

The modern double-breasted greatcoat has a more attractive appearance than the old single-breasted one, although it is not so easy to open up in front when equipment is worn. But if such opening up is necessary, it is probable that the greatcoat is best not worn at all. Men who have experience in hot countries have suggested to me that tropical clothing is best worn so that no tight belt is used, but that the drill shorts are buttoned to the shirt or held by braces in such a manner that the breeze can blow up the tubes of the shorts and exit freely from the open neck and the short sleeves. In this way a flue effect is obtained and the cooling of the body surfaces is encouraged. The

Indian soldier when he wears his shirt outside his trousers in hot weather is well aware of this idea.

The webbing equipment issued to-day is lighter and more easily adjusted than the older leather equipment. It is so designed that it can be made to fit comfortably on any physique and yet be easily taken off, just as a coat is taken off. This feature is valuable when rests are being taken on the short halts during a march. The pack should be carried as high as possible upon the shoulders, allowing room for the rolled-up cape, anti-gas, which comes above it. Only authorized kit and equipment should be carried: inspections by regimental officers at frequent intervals will ensure this and also that the equipment of each man is properly adjusted to his person.

The optimum load for the average human being is about 30 per cent. of his body weight. This for a 10-stone man is 42 pounds, but the standard load is somewhat higher, being 55 pounds 6¾ ounces. Since the last Great War strenuous efforts have been made to lighten the load of the soldier. Then he often carried as much as 75 pounds in summer and 80¼ pounds in winter. It will be seen that considerable reductions in weight of the soldier's equipment have been effected. Training makes the carrying of the 55 pounds load well within the compass of even the lighter men.

When a long march is to be carried out it must be the subject of careful planning. The standard routine which is the result of long experience must therefore be followed, or at least borne in mind when adaptations of this routine become necessary.

There should first be a medical examination of the men undertaking the march so that those who obviously are unfit and unable to last out are eliminated. Nothing is more harmful to the morale of a marching column than to see many of its numbers fall by the way. Any transport used to pick up the stragglers should be kept out of sight and seldom allowed, for obvious reasons, to overtake or pass the marching column.

Unless there are tactical reasons to the contrary, the march should be by day. Night marches are more exhausting than day marches and tend to create depression. Daylight, and especially sunlight, have a stimulating effect on the nervous system. When night marches are tactically necessary, the reasons might be explained to the men and their understanding co-operation secured to reinforce their action under orders. The British soldier will always respond with enthusiasm to such an additional demand and when his instincts as a sportsman are aroused. We are to-day much more intelligently concerned with the psychological factors in warfare than we used to be. Here is an

example of their application. Napoleon used to stress the importance of the moral as being greater even than the physical.

The start should be early enough to enable most of the march to be carried out before the full heat of the day. Summer time is a great help in this connection as the clock has two hours start of the sun. Yet the start should not be so early as to deprive the troops of a good night's sleep or to cause cooks and duty men to bestir themselves at unearthly hours. The programme before the start should be carefully timed so that the men may all visit the latrines and get their equipment in order. Cooks and orderlies should have time to clear up and prepare themselves for their special duties on the march. The night before, the men should fill their water bottles from the water trucks with sterilized water so that each soldier will carry a quart of water on his person. The water trucks or trailers must then be filled again after a thorough cleansing with double strength bleaching powder. The sterilization of the water contained in the tanks can then be proceeding overnight. In these trucks and trailers will be the equivalent, at least, of one quart of sterilized water per man of the unit. Hot weak tea well sweetened with sugar may be used in the water bottles of the men. The sugar will provide quick energy-giving food, but on the other hand sweet tea is not such a good thirst quencher as water.

Contrary to popular belief, a heavy meal is not desirable before sustained physical exertion like a long march. What is required is a meal easily digested and which provides energizing foods to be available during the march until the mid-day halt. Thus a breakfast of bread and butter, with the butter (or vitaminized margarine) "spread on thick," washed down by tea with plenty of sugar and milk in it, will be best. The dissolved sugar in the tea will come to provide a quickly assimilated source of body energy. Then later the energy-providing carbohydrates of the bread and the hydrocarbons of the butter fat will be more slowly assimilated and create energy for the continuation of the physical effort of the march.

Where the messing officer can exercise his genius will be in the kind of haversack ration carried by each man for consumption at the mid-day halt. This should be made as attractive and varied as possible, and if fruit, salads, cheese, etc., can be added to the meat sandwiches, so much the better. It is probably best to prepare the haversack rations the night before the march if measures can be taken to prevent them getting dry. Everything possible should be done to reduce the work of the cooks and mess orderlies on the morning of the march if they are accompanying the unit. They will have, before the march begins, the work of making the necessary preparations, for example possibly hay

boxes so that the big evening meal on arrival at the end of the march can soon be ready.

The light breakfast will enable an earlier start to be made after it than would be possible after a heavy meal. The " fall in " should be so timed that, when all the men have been checked over and accounted for, the unit is able to move off without delay. Nothing is worse than keeping a unit paraded in full marching order waiting a long time for the order to move. It is highly irritating and exhausting,and tells the world that the organization of the march has been faulty. Good timing is not only essential in actual military operations but also in the training of the soldier. Every advantage should be taken to use training to give exercises to all concerned in planning and synchronizing the movements of bodies of men.

When the march at last (not at long last) begins, a " warming up " period of 20 minutes should be allowed. During this time the full quick step should not be demanded until all joints have been loosened up and the men have, as it were, found the appropriate communal rhythm for the march. A short halt of five minutes at the end of this period should be allowed in which the men can have opportunity of adjusting equipment, tying bootlaces and, if they have missed the latrines before starting, to attend to the calls of nature before moving on again. This brings us to the difficult problem of sanitary arrangements during a long march.

At the short halts, such as the one described above, and the standard halt from 10 minutes before each hour until the hour, the men must be, individually, their own sanitary orderlies. Urine will probably do no great harm behind a hedge or in a shady copse, but fæces should be buried by each man in the manner of the domestic cat. An entrenching tool or similar implement is all that is necessary to make any deposits of excrement inaccessible to flies and unobjectionable on æsthetic grounds. Obviously such halts should be taken as far as possible in secluded rural positions, although this may not always be possible.

After the first short halt the marchers are ready to hit up the standard quick step or follow the march routine of the Light Infantryman. Variety is desirable in the marching. After the " march at attention " will follow the " march at ease." The singing of marching songs and the cracking of jokes should be allowed, but the men must display proper manners in respect of passers by, and if they must sing ribald songs to do so on lonely stretches of road ! Bands and pipes are a great help, and it is a pity they are not in common use as they were in the last war. There appears to be no valid objection to the use of " canned " marching music delivered from gramophone records used in a loud-speaker van. On

the other hand the spread out character of modern marching makes this less easy than it seems. An occasional change to " march to attention " will help to provide variety.

One hygienic problem which has to be solved on the march is the dissipation of excess heat, especially in hot weather. Compared with conditions of rest it has been calculated that a man will use about five times as many calories when he is on the march. Of these calories, about one-third will be used up in the work done and two-thirds will take the form of heat. This excess of heat produced must be dissipated from the body if heat stroke and heat exhaustion are to be avoided.

Excess body heat is normally dispersed through the process of perspiration. The sweat glands express on to the surface of the body sweat—mainly water—and in the evaporation of this into the air body heat is used and the body therefore correspondingly cooled. Thus the body surfaces must be ventilated as much as possible with currents of air to facilitate this evaporation of exuded sweat and the consequent cooling of the body. A slight increase in body temperature to about 100.5 F., as compared with the normal of 98.4 F., is an advantage when hard work like marching is being done. Temperatures over 100.5 F. must, however, be avoided and the halts are designed to provide additional opportunities for cooling down. On the march, in warm weather, necks of blouses should be opened up and sleeves unbuttoned. The three-rank method of marching provides for greater ventilation on the march than the old columns of four used to do. Even so, it will be well to give the middle rank a change by putting the men on the outside and also to give men in the rear of the column a turn at marching in front. It has been demonstrated that men in the rear of a column may use up 6 per cent. more energy than those in front. Other lesser cooling processes are through evaporation of water in the breath and by the passage of urine and fæces.

Since the natural cooling of the body depends upon the evaporation of water from the body on the surface of the body, it follows that the quantity of liquid in the body is bound to fall on the march. As an average it has been estimated that about one quart of water is lost during a march of seven and a half miles. Its replacement then would appear to be desirable. Water discipline on the march usually resolves itself into the following routine. For the first seven and a half miles no drinking from water bottles or any other source is allowed. The liquids imbibed at breakfast together with those already in the body will last out for this distance leaving a working margin. After this distance, however, the sensation of thirst will be definitely felt and a little water at a time can be ingested. This should be allowed only on the halts, and

in small quantities, or the stomach will become overloaded with liquid and marching interfered with. The quart in each man's water bottle must be eked out to last until the fifteen-mile point is reached. Usually it is at this point that the mid-day halt of one hour is taken.

When on the march the sucking of a pebble or the chewing of gum can be allowed, but no smoking should be permitted until after the haversack ration is eaten at the mid-day halt. At this point also the water bottles, if empty, can be filled from the sterilized water in the water trucks or trailers, and the latter refilled with water clarified in the filters attached and set to chlorinate as the march continues. If tea has been served from the cookers at the mid-day halt, then water bottles should not be brought into use too soon on the third stretch of $7\frac{1}{2}$ miles, or only sips allowed at the earlier halts after the mid-day meal. Thirst is to be merely relieved and not quenched when on the march. A little at each short halt is the rule. If the march is longer than $22\frac{1}{2}$ miles, then a third filling of the water bottles of the men and the water tanks of the units may become necessary. Water from unofficial sources must not be used.

This conventional water discipline is, however, not always followed, and some troops have been trained to march much longer distances without drinking and without apparent ill effects. The tendency in the modern army appears to be towards the elimination of drinking as far as possible on the march. The experience of Commanding Officers and Medical Officers on this point would be of great interest.

At the mid-day halt of one hour improvized sanitary arrangements will be necessary and possible on a group system. For each convenient body of men a site behind trees, in copses or sheltered waste ground should be selected, and a suitable number of shallow trench latrines—three feet long, one foot wide and two feet deep—should be dug. The digging tool should be left stuck in the excavated earth for each user to cover up his own excreta with fresh soil. Shallow urine pits, with the turf removed to a depth of about six inches and the sub-soil loosened for another six inches, should be made as well. Shallow pits for refuse must also be dug and all refuse collected into the pits before the unit recommences its march. Shallow trench latrines, pits and refuse pits should all be filled in just before the unit moves off and the turves hammered hard into their old position. If possible, the used site should be marked with stones laid on the ground to form a letter L—for latrines. This will prevent its use too soon by following troops.

A problem arising from the modern wider dispersal of troops on the march will be the labour for making these temporary sanitary arrangements for the mid-day halt. The sanitary squad of a battalion, for

example, cannot meet all the needs of their unit spread out into platoons along miles of roadway. Therefore, the work must be sectionized and done, as far as practicable, by men who are carried on a vehicle rather than by men who have to march. There is, it is understood, a motor vehicle attached to each platoon. On this there are digging tools and a driver's mate. Clearly this is work for the driver's mate, who does not march. Perhaps regimental officers of various types of units will consider this problem, and their solution of the difficulty in specific cases would be of great interest and assistance to the writer of this article.

At the halts the men should divest themselves of their equipment, keeping their anti-gas equipment close at hand. They should relax completely, and use the shade on hot days. Luckily, halting points with cover near at hand are suitable both in respect of protection from aerial attack and for the provision of secluded sanitary areas. Care must be taken that crops and fences are not disturbed or damaged when sanitary areas for mid-day halts are provided. A previous reconnaissance of the route will be of obvious value. If there are alternative routes the most suitable and most shaded route should be selected.

An advance party with, perhaps, the Medical Officer should reach the camp or bivouac site in sufficient time before the troops arrive, so that the essential sanitary provisions in the way of shallow trench latrines, urinals and refuse pits can be made. Information as to these is available in the Army Manual of Hygiene and Sanitation and, in brief, in the Field Service Pocket Book Pamphlet No. 10. It is important that latrines and urinals are available in sufficient number for the men on their arrival in camp.

On arrival at camp hot sweet tea for the provision of immediate energy through the soluble carbohydrate of sugar will be issued to the men. Then will follow the essential camp duties and fatigues. After that the men should wash themselves, especially their feet, when a foot inspection will follow immediately. Finally, the hot meal of the day is served, and after this the marchers will draw their blankets and enjoy a well-earned rest. It will be seen that in the routine of the march the practice of hygiene is not only essential for reasons of health and well-being, but also to safeguard the fighting efficiency of the column, enabling it to arrive fit and ready for any emergency.

# OCEAN AIR TRANSPORT[1]

By J. T. TRIPPE, President, Pan-American Airways System

THAT this distinguished gathering has convened here to-day, amid the chaos of a war-torn world, for a lecture on civil aeronautics is indeed a singular expression of the true spirit of our profession. It is, I think, graphic proof of the fact that all of us in aviation are looking forward to the day when the aeroplane can lay aside its duties of destruction and once more assume its truly great role as a constructive force in world civilization.

I am, therefore, particularly sensible of the privilege of delivering, at this historic meeting, the Twenty-ninth Wilbur Wright Memorial Lecture. Under any circumstances, we in America feel that an invitation to address you, the parent body of the aeronautical profession, is one of the highest honours which can be attained by an individual engaged in aviation.

My role here, of course, is hardly that of an individual. In the narrowest justifiable sense, I can but speak for what has been accomplished by the 7,000 men and women who are the Pan-American Airways System. That company, in itself, is singularly the product of a community effort of a large part of American industry. My purpose to-night, however, is to speak from an even broader viewpoint than that of a representative of any organization or group of organizations.

It has been scarcely two years since civil aviation established the first scheduled air transport service across the North Atlantic—a goal toward which the airlines of many nations had been working for almost two decades. Were it not for the war, three nations, and perhaps six, would now be participating actively in the development of ocean flying along this major world trade route. Perhaps five nations would also have established operations on the South Atlantic. Yet the war has left only the United States in a position to carry on with scheduled trans-oceanic air transportation. Upon us, therefore, has rested the task of maintaining essential overseas air communications, as well as the responsibility for continuing the development of this vitally important phase of the air transport art.

I have conceived my talk to-night as a report upon the manner in which we have attempted to discharge that responsibility, together

[1]An abridged version of the 29th Wilbur Wright Memorial Lecture given before the Royal Aeronautical Society on 17th June, 1941, and reproduced here by kind permission of that Society.

with a brief analysis of some of the technical development of the Pan-American Airways System to date—a development which has made possible the trained personnel, flight equipment, and operating procedure required for over-ocean air transport service.

International air transportation throughout Europe began to develop swiftly before the end of 1919. It was not until some years later, actually in October, 1927, that the first American international air service was inaugurated, when Pan-American Airways undertook to establish scheduled operations between Key West and Havana. This, our pioneer effort, involved a 90-mile route across the Straits of Florida. From the very outset, the policy adopted by Pan-American Airways required the use of multi-unit power plants. This we considered an essential requisite for over-water flying. Only aircraft so equipped could possibly provide the necessary reserve power which, even with the loss of one engine, should assure sustained flight through to destination, or safe return to the port of departure.

In 1927 no marine-type aircraft had yet been developed in America suitable for air transport operation. The Fokker F-7 tri-motored landplane with its demonstrated ability to maintain flight on only two of its three engines, however, was soon to be available on the American market. Equipped with three Wright Whirlwind engines of 220 h.p. each, these planes could lift a gross weight of 9,700 pounds, and had a cruising speed of ninety miles per hour. The wings of wooden construction lent themselves to the installation of flotation gear which contributed an additional safety factor. Even equipped with supplementary marine accessories, they permitted us to carry mail and eight passengers. These aircraft and the larger and improved Fokker F-10 tri-motored transports, available the next year, enabled us to extend service across the intervening over-water sectors of the West Indies as far South as Puerto Rico.

Between Puerto Rico and Trinidad, however, there were available no adequate sites for airports or intermediate fields which would permit the extension of this eastern route through the lower Antilles. Likewise, our projected western route, which branched from Cuba across the Straits of Yucatan, and thence through Central America to the Panama Canal zone, required an entirely different type of aircraft. For these essential extensions of our service the Sikorsky S-38 amphibian was utilized. This pioneer American marine transport, capable of operating to and from both land airports and water areas, was equipped with two 420 h.p. Pratt and Whitney "Wasp" engines. Because of its inherent seaworthiness, it enabled us to carry seven passengers and mail within its gross weight limit of 10,480 pounds, and to establish two trunk line

routes by following the perimeter of the Caribbean between North and South America.

Availability of more powerful engines and further departures in hull and wing design were incorporated in the first twin-engined American flying boats designed for transport use—the Consolidated " Commodore," which made possible a next step in our overseas transport development. This took the form of the first direct service across the 631-mile open-water sector between the island of Jamaica and the Panama Canal zone. In 1931, this represented the most ambitious overseas operation so far undertaken by scheduled air transport. In terms of the performance characteristics of this pioneer flying boat and the many unsolved problems involved in such long range operations, this was indeed a formidable distance. The " Commodores " permitted us to establish service, with restricted traffic loads, along this natural traffic artery between the continents.

However, to carry commercially practical loads with adequate safety over such a long range would require a four-engined marine aircraft much larger than any transport so far projected in the United States. A step toward this goal was the Sikorsky S-40 of which the first of three entered service early in 1932. The development of these planes, built to specifications based on our growing experience, made an important contribution toward overseas transport. The impressive size of these ships, which could carry 40 passengers on the Miami-Havana run and which had a gross weight of 34,600 pounds, did much to break down the prevailing public resistance to over-water flying. From the standpoint of our industry, they served as a convincing demonstration to designers and manufacturers of the potentialities of increased size and horse-power in aircraft for international—and particularly for over-water—operation.

On the side of operating technique, the S-40s provided us with many new lessons in maintenance and surface handling of large-scale aircraft. Static conditions, typical of the tropical sphere of our operations, had required the use of radio-telegraphy rather than voice communication. As a result, the standard Pan-American Airways crew had always consisted of at least two pilots and a radio operator. Now, the use of four-engine aircraft led us to add a fourth member to the flight crew, an engine specialist. To ensure accurate navigation across our trans-Caribbean sector, we undertook to adapt celestial navigation to air transport purposes and to increase the range of our radio direction-finders. We also extensively supplemented our weather service organization to provide improved weather analyses for this overseas flying. Thus it was that the Caribbean became a working laboratory in which, under large-scale and actual operating conditions, we were able to gain

invaluable experience which was to form the basis for future undertakings of trans-oceanic operations.

For the first seven years of its history the Pan-American Airways System was engaged in the major and absorbing task of establishing an airline network between the Americas. First, by plane and muleback, by steamer and dug-out canoe, went young engineers to blaze the trail, to carve airports out of jungle, to clear sites for weather stations in lonely mountain passes. Their aides were Indians who had no idea of what an automobile might be and who had never heard of a railroad train. Following them went builders to construct hangars and passenger stations, hotels, and the two hundred odd weather observatories and radio control stations which to-day guide the aircraft flying the airways between the Americas. By 1934, the initial stage of this pioneering effort was completed with the extension of service to every important country and colony in the three Americas.

But even while these airways were extending southward, development work had been well started toward a trans-Atlantic air line. Since little authentic information was then available with respect to climatic and meteorological conditions as they affected trans-Atlantic flying, research expeditions, some entirely our own, others in which we were associated with American and European universities and scientific bodies, were dispatched to Iceland, to Greenland, to Labrador and Newfoundland. Company engineers conducted similar surveys at the Azores as well as other points in Europe and Africa. Supplementary flight surveys were made in the far North. Special weather stations were put aboard trans-Atlantic liners to aid in the development of a comprehensive weather forecasting and reporting service.

Through these same years our technical staff had been constantly studying the steady progress of aircraft and power plant design in all its elements. As early as 1932, as a result of such studies, we felt justified in issuing tenders to manufacturers for the design and development of four-engine flight equipment which we hoped would permit the establishment of a seasonal trans-Atlantic service. Development of these aircraft contributed not only to our own progress but also to the air transport industry as a whole. The Sikorsky S-42, of which the first was delivered to us in 1934, effectively disproved the prevailing theory that large heavier-than-air craft were not commercially sound; that the larger the plane the less load it could carry in proportion to its own weight. This plane, equipped with four 700 h.p. Pratt and Whitney "Hornets," cruised at 160 miles per hour. With a gross load rating of 38,000 pounds (increased in later models to 42,000 pounds), this plane had a ratio of useful to gross load of 36 per cent., a remarkable

achievement for that time. These aircraft, of which we were to secure a total of ten, have done yeoman service in many regions. Equipped as a thirty-two passenger transport for ranges up to 1,000 miles, this fleet, until recently, was the nucleus of our express service to South America and along the East coast of that continent to Rio de Janeiro and Buenos Aires. Equipped with extra tanks, it permitted us, as I shall describe later, to conduct survey flights on the routes we projected on the Pacific and the Atlantic.

The second type of ocean aircraft, the Martin M-130, equipped with four Pratt and Whitney "Twin Wasps" of 900 h.p. each, had a gross load rating of 52,000 pounds and an empty weight of only 29,500 pounds. Two of these planes were delivered to us in 1935 and a third in the Spring of 1936. Capable of carrying, with ample fuel reserve, a substantial load of mail and ten passengers on a non-stop flight in excess of 2,000 miles, this Martin Clipper thus gave us the physical means, as early as 1935, of establishing a trans-Atlantic service. For reasons which I will outline later, however, we were not able, at that time, to inaugurate actual flight operations on the North Atlantic.

## Trans-Pacific Air Service

In 1934 had begun an adventure in ocean air transport in an entirely different direction. To the West of us, across a chain of islands which were either territories, possessions or associated commonwealths of the United States, lay an 8,683-mile route to the coast of Asia. Unable to move forward on the Atlantic, we applied our aircraft, our trained personnel and the operating technique which we had developed in the Caribbean for the Atlantic service to the establishment of this trans-Pacific airway.

In all respects, save those pertaining to difficult operating conditions of winds and weather, the physical task of building a trans-Pacific airway presented greater problems than did the corresponding project on the Atlantic. My use of the term "adventure" for this Pacific undertaking was an advised one. Honolulu, Midway, Wake, Guam, Manila—even the names of the ports of call of this projected air line, lent story-book glamour to the enterprise. All the proposed bases offered harbours or lagoons satisfactory for seaplane operations. Docking requirements, the radio communication set-up, maintenance facility needs and fuel storage requirements, were problems which could be met, premised on past experience on other Pan-American routes. Everything else varied grotesquely. Honolulu and Manila offered all the facilities, resources and advantages available in any well-developed centre of population; at these points our principal task was to instal our radio

and specialized base facilities. At Guam, radio and base facilities would have to be supplemented by the construction of some sort of hotel facilities for Clipper passengers. On Midway Island there was a small colony in charge of the cable relay station, but there were no facilities for newcomers. Wake was a tiny low-lying " V-shaped " atoll, a thousand miles from the nearest land. Exposed on all sides to the surf, it had no harbour protection of any kind. There was no vegetation save matted underbrush, no fresh water, no food, no shelter.

We determined to tackle the task of setting up complete bases on all five of these islands, in a single expedition. On 27th March, 1935, our colonizing steamer, the s.s. " North Haven," nosed heavily off through the Golden Gate bound on that four-months assignment. Never had a ship such a cargo or complement of passengers. Aboard her had been shipped two complete villages, five air bases, a quarter million gallons of fuel, 44 airline technicians, a construction force of 74, food to feed them for months and, literally, 1,018,897 other items of equipment and material. Even before this steamer reached Midway early in April on its arduous but successful mission, the Pan-American Clipper—a specially fitted Sikorsky S-42—took off on a round trip survey flight of the 2,400 mile sector of this route lying between San Francisco and Hawaii. Within the next few months, as each succeeding island base was set up and put into operation, this same Clipper conducted, step by step, flight surveys of the remaining legs of the route. The 1,304 miles between Honolulu and Midway—1,185 miles between Midway and Wake—1,508 miles between Wake and Guam—1,589 miles between Guam and Manila, all were completed " without incident." With the delivery of the first Martin Clippers and the completion of its service test we were able to inaugurate, on this route, the first scheduled trans-oceanic air service for passengers.

### Trans-Atlantic Air Service

In the meantime our development work continued on the trans-Atlantic routes. Inquiries were released to manufacturers inviting tenders for more modern and efficient aircraft of higher cruising speed and greater payload. Early in 1936 we contracted with the Boeing Aircraft Company of Seattle for six four-engined flying boats to be known as the Boeing type B-314, which were to have a gross load rating of 84,000 pounds and to be capable of carrying 30 passengers in berths under average conditions across a 2,000-mile non-stop flight sector. New features to be incorporated in these ships were companion-ways to permit accessibility to engines in flight and a flight deck ample for an entire flight crew, located above and completely separated from the passenger compartment. With such planes as these we knew that we

could substantially improve our service in the Pacific and be even more adequately prepared to set up a pioneer service in the Atlantic which we hoped to be able to inaugurate several years later. Unfortunately, as you so well know, international air transportation in its brief history has been confronted not alone with grave technical problems but also complicated political problems. With the adoption of the Paris Convention of 1919 covering international commercial aviation, followed by the Havana Convention and other similar enactments, the law of the air departed sharply from maritime conditions. There is no "freedom of the air." Every country now claims full sovereignty over its air space and no aircraft, even of a friendly Power in time of peace, can fly to or over the territory or territorial waters of any other country without direct permission or treaty authorization. Such was the situation on both sides of the Atlantic. Before transport operations could be set up between the United States and Europe, many of these political questions had to be settled. It is sufficient for the purpose of our summary of trans-oceanic operations to say that it was not until 1937 that sufficient progress in the solution of these political problems had been achieved to permit the start of actual trans-Atlantic survey flights.

From prior studies we knew that, so long as we were limited to aircraft which could not operate commercially on non-stop flights between the United States and European capitals, there were two general routes which offered best possibilities for a successful initial trans-Atlantic service. The first of these, for the purpose of convenience, can be referred to as the Great Circle Route to Great Britain and France via Canada, Newfoundland, and Ireland. The second—the Mid-Atlantic—extended from New York via the Azores and Lisbon. Bermuda offered possibilities as an alternate "stepping stone" on this Mid-Atlantic route. Winter conditions on the American, Canadian and Newfoundland coasts limited flying-boat operations on the Great Circle Route to a seasonable basis.

Between June and September of 1937, a series of five engineering surveys were conducted by Pan-American Airways, utilizing an S-42 especially equipped for flight research. Beginning on 25th June, a preliminary survey covered the projected route from New York 601 miles to Shediac, New Brunswick, where an intermediate station had been established by Pan-American. A second continued from New York, via Shediac to Botwood, Newfoundland, 471 miles farther. In July, on the same day that a survey plane of Imperial Airways left Foynes, the Pan-American Clipper took off from Botwood on the first transport survey of the critical 1,995-mile sector of this Great Circle Route lying between Newfoundland and Ireland. I feel I need hardly

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Between June and September of 1937, a series of five engineering surveys were conducted by Pan-American Airways, utilizing an S-42 especially equipped for flight research. Beginning on 25th June, a preliminary survey covered the projected route from New York 601 miles to Shediac, New Brunswick, where an intermediate station had been established by Pan-American. A second continued from New York, via Shediac to Botwood, Newfoundland, 471 miles farther. In July, on the same day that a survey plane of Imperial Airways left Foynes, the Pan-American Clipper took off from Botwood on the first transport survey of the critical 1,995-mile sector of this Great Circle Route lying between Newfoundland and Ireland. I feel I need hardly

put into words the regret of all of us in Pan-American Airways that the course of history has not permitted our friends in the British air transport industry to continue thus to fly at our side in scheduled as well as survey operations. The final survey over the Mid-Atlantic Route was launched on 16th August from New York to Bermuda, thence via the Azores and Lisbon, to Marseilles. From Marseilles the Clipper continued to Southampton before return to the United States again via Marseilles and Lisbon.

These surveys, conducted under strict transport routine, familiarized flight crews with the conditions at bases along the routes and served to confirm the adequacy of our ocean transport flight technique as applied to trans-Atlantic operations. In spite of the comparatively mild season of the year, these flights also confirmed our general respect for the difficult weather problems we knew to be characteristic of the Atlantic area. Winds at altitudes at which we planned to operate proved even stronger and more stubborn from the West then we had expected. Final ocean swell observations in the Azores forecast a difficult operations problem at that essential refuelling point.

While these surveys were completed in 1937, conditions arose during the following year to postpone further the institution of scheduled service and it was not until 20th May, 1939, that the Yankee Clipper—first of our new Boeing B-314 ocean transports—headed out from New York for Europe on official flight No. 1, instituting the first scheduled aeroplane mail service over the Atlantic ocean. By 24th June, scheduled service had been inaugurated across both the Great Circle and Mid-Atlantic routes. By July, passengers as well as mail were being carried in both directions on regular weekly schedules to Southampton and to Marseilles.

### Effects of the War

This pioneer service, confronted by many problems of its own, was soon to be affected by circumstances of a more serious nature. Three months after the service started, it became obvious that war was imminent in Europe. It would be necessary to withdraw the terminal of the Great Circle Route from Southampton to Foynes, in neutral Ireland, and similarly to withdraw from Marseilles to Lisbon on the Mid-Atlantic Route. Early in October, as had been foreseen, weather conditions along the Great Circle Route required us to consolidate both services along the New York-Lisbon airway with a single intermediate stop at the Azores. If it had not been for the war, we would, of course, have continued directly to serve Southampton via Lisbon. In the Spring, we would have re-established service across the Great Circle Route if the enactment of America's "Neutrality Act" had not intervened to

make the area to the West of Ireland a combat zone and hence one which we could not cross. All flight operations have since been conducted across the mid-Atlantic and southerly routes.

From an operating problem point of view, during the past two years, the Atlantic has lived up to its advance reputation. Even during the first months of operation, prior to the outbreak of war, difficulties already encountered were sufficient to confirm the North Atlantic as being, technically, the most difficult operation of any major aerial trade route.

The outbreak of war, forcing curtailment of regular steamship service, left the trans-Atlantic air route one of the most important arteries between our two countries. Traffic demand which had been encouraging but not spectacular in the early months of service climbed swiftly to volumes ten times greater than the original estimates.

## Improvements in Service

A few months after the opening of operations in 1939, and shortly after the outbreak of war, we released an order for six additional Boeing B-314-A transports for delivery early in 1941. Four of these have now been delivered, three of which have been transferred to the British Government. The remaining aircraft on this order should enable us soon to increase our frequency of service from three to six round trips each week on the Atlantic. Meanwhile, we have attempted to take every step which might increase the payload capacities of our ships to carry the greatest possible volume of their important wartime traffic. We have been able to make changes in our engines and propellers, to increase our operating efficiency and decrease fuel loads. Every spare ounce of furnishings, equipment and even paint has been stripped from the Clippers for the same purpose. Instead of operating all scheduled non-stop between Bermuda and Lisbon, as the improved B-314s are now capable of doing, we schedule flights into and out of Horta whenever weather and sea conditions permit in order to make available the approximately 5,000 pounds eastbound and 3,000 pounds westbound additional payload.

The flight logs show how difficult were operations through the winter of 1939-1940. Many flights were delayed due to harbour conditions at Horta. Others were cancelled due to extremely strong westerly winds and unflyable mid-ocean storms covering areas too wide to detour; and still others when flown were able to carry only very limited westbound payloads. As a result, we surveyed and put into operation during this last winter of 1940-1941 a route for westward crossings which swung far South from the usual route. Heading South from Lisbon, the Clippers landed at Bolama in Portuguese Guinea, West Africa, then turned

westward to Belem in Brazil, thence northward to New York via Trinidad and either Puerto Rico or Bermuda. Such a route, while 4,085 miles longer than the Lisbon-Azores-Bermuda-New York route, and correspondingly more expensive to operate, nevertheless substantially offset the increased cost in the improvements thus effected in terms of an increased percentage of schedules completed and an increased number of passengers, in addition to the mails, moved from Europe to the United States.

By overflying Horta on eastbound trips throughout the winter and following the South Atlantic route on westbound trips, the Clippers were able to complete 50 per cent. more westbound crossings than during the previous winter. Of a total of twenty-five trips scheduled only fourteen were completed in three winter months of 1940. In 1941, twenty-one of these flights were completed via the Southern Route—a record of 84 per cent. performance against 56 per cent. for 1940. Traffic-wise, the change of route proved equally satisfactory. In the winter of 1940 only 286 persons were carried from Lisbon to New York. During the winter of 1941, this total reached 471 for the period and this in spite of an increase of mail loads from 33,247 pounds to 45,404 pounds.

So far, account of our trans-Atlantic operations must seem to be largely a tale of difficulties. Yet, despite these early growing pains, despite the severe difficulties imposed by the war (which among other things restricted the scope of the weather service on which much effort had been spent)—despite all these things we feel that, even in these two difficult years, some progress can be assumed in the developing art of ocean air transport. That our operating organization has succeeded in maintaining a reasonable record of service and to date an unblemished record for safety is a source of real gratification. The methods developed to achieve this record represent our contributions to air transport. They are, to a large extent, original with Pan-American Airways. They have, to my knowledge, never been previously discussed in detail.

First came the development of the Multiple Flight Crew, through whose specialized organization and training it has been possible to conduct transport flights as long as twenty-four hours in duration. Second, the accessibility of power plants—a feature which Pan-American has sponsored—and the practical results of which have made this a prerequisite for future oceanic operation. And third, the development of a system of scientific flight control, through an individual ocean flight-plan, which directly applies the analysis of any given set of conditions to the end that the flight shall be conducted on a basis of known quantities and toward deliberate elimination of all possible uncertainties.

## The Multiple Flight Crew

I previously mentioned how, at the inception of our four-engined operation, we had adopted as standard a four-man crew. Adequate for Caribbean operations, our analysis of ocean transport problems had indicated the need for crews far larger and individually trained for specialized assignments. We considered the primary personnel requisites of ocean air transport to be : (1) Expert direction of the flight ; (2) Piloting ; (3) Navigation ; (4) Control and care of power plants ; (5) Maintenance of communications ; (6) Passenger service.

Thus evolved the concept of to-day's standard Multiple Flight Crew, composed of a captain and his crew of ten. Directly responsible to him are five officers, qualified as specialists in the primary departments —piloting, navigation, engineering, communications and passenger service. Each of these has a qualified assistant capable of relieving him for rest periods. The training of this composite group ensures its smooth and automatic functioning as a complete flight organization. The crew of eleven, which typically mans our trans-Atlantic Clippers, is as highly organized as any which ever operated a destroyer or a submarine.

The Clipper Captain is the chief administrative officer. He is invariably a veteran of many years of experience on Pan-American's overland as well as overseas divisions. In addition he has qualified himself through research and study to attain the rank of Master of Ocean Flying Boats. This rank testifies that the individual has successfully demonstrated sound judgment throughout his professional career and is an expert in all phases of piloting. He is also qualified in aeronautical engineering, in engine and aeroplane mechanics, in meteorology, in radio operation. He holds the equivalent of a Master Mariner's ticket. His rank further testifies that he has qualified himself in the subjects of international law, marine law and business administration as required for the performance of his duties. In trans-ocean operation, all of these special qualifications are at one time or another required of the Captain of an ocean-going flying boat. It has been our experience that five years of training and post-graduate study are required to make a master ocean-flight Captain out of an excellent pilot.

The *Captain* is directly responsible at all times during the flight for the safety and well-being of the aircraft, of the persons and goods carried, for the conduct of his crew and for the completion of his mission, in exact accordance with his orders. The Captain's station is the left-hand pilot seat, during all take-offs or during approaches to airports, during landings and in all emergencies. An administrative station is provided for the Captain at an " office " at the rear of the flight deck. During the course of the flight he personally supervises all crew members, makes

periodic checks of the navigation and prescribes speed, track and altitude of the aircraft.

The *First Officer* is second in command and alternates with the Captain as Senior Watch Officer. His qualifications are also second only to those of the Captain and he is usually a senior pilot qualified for early advancement to a Captain's rating. He is the executive officer of the ship. He is responsible for the proper loading and unloading of all cargo and for a thorough, general inspection of the aircraft before take-off. His primary station is the right-hand pilot seat.

The *Second Officer*, who is a senior pilot-in-training, is responsible for the navigation of the aircraft. Our navigation technique can best be described as " as thorough as we can make it." The navigation means available to this officer are three : dead reckoning, celestial observations and radio bearings. Our dead reckoning methods are basically similar to those used in deep sea practice. For some years, however, we have been using a drift sight target which, I believe, is original. It consists simply of a small thin-walled glass flask, filled with pulverized aluminium powder. Breaking instantly upon impact with the water, it quickly produces a large and extremely visible " slick " to give a fixed point upon the water's surface. At night magnesium flares are used for the same purpose. Our celestial navigation practices are as streamlined as we can devise to speed the translation of octant sights upon sun, moon or stars into actual position data. Normally, celestial " fixes " are made at least once an hour and dead reckoning positions are computed between such " fixes " at least every half-hour. As a third method of checking the ship's position, the Navigation Officer makes constant use of radio bearings from the direction-finder stations ashore taken on the plane or by bearings from the plane itself upon shore stations and ships at sea.

The *Flight Engineer* is responsible for the mechanical operation of the aircraft and the power plants. He is responsible for loading of fuel and oil in amounts specified by the Captain, and personally measures the supply of each aboard before departure. He also participates in the inspection and servicing of the plane and familiarizes himself with its recent mechanical history. During the flight his station is aft and at the starboard side of the flight deck.

The *Flight Radio Officer* is responsible for the operation of the plane's complete radio equipment and for maintenance of constant communication with the radio-control stations ashore. On duty he is a rather busy airman. At a minimum, he must contact his watch-ground station every fifteen minutes. On the half-hour he must transmit the ship's position and on the hour, in addition to the position, a complete report on its navigation and progress, the track made good, winds,

weather and general conditions. He constantly receives weather reports, bearings from ground stations and is in turn himself taking radio bearings upon surface stations or upon any available ships within range.

Radio equipment carried by a Clipper consists of two completely interchangeable telegraph and telephone transmitters, which can operate on either high or low frequency, thereby providing for communication with surface vessels as well as the ground control stations. The ship also has two receivers, the functions of which are interchangeable and which cover frequency bands of 200 to 18,000 kilocycles. There is also an automatic direction finder which can be manually operated. An additional receiver for radio telephone operation, controllable from the pilots' posts, is carried for use within 60 miles of terminal stations, in conjunction with the regular transmitters. For communications, ground control stations are equipped with from three to five transmitters of various power outputs for ground-to-plane and point-to-point communications, together with the necessary receiving equipment. In addition, each station is usually equipped with radio navigation facilities. Normal communication ranges are in the neighbourhood of 3,600 miles.

The *Flight Steward.* His duties include responsibility for all details related to the comfort of passengers, such as the serving of meals, the preparation of berths and the handling of luggage aboard ship. With sometimes as many as thirty-two passengers to care for, in addition to the crew, he is by no means the least busy member of the ship's complement.

The *Third Officer,* who is a junior pilot-in-training, serves primarily as relief for the Second Officer during flight. Prior to take-off, he assists the First Officer in his inspection and has a duty of his own to make sure that all hatches and bulkhead doors are closed. Immediately after take-off, he conducts a visual examination of major external structural components and reports his findings to the Captain. He handles the bow mooring line when casting off and mooring. The *Fourth Officer,* also a junior pilot, assists the pilot officers in both flight and ground duties.

The Multiple Flight Crew is rounded out by an Assistant Flight Engineer, an Assistant Flight Radio Officer, and an Assistant Flight Steward, whose duties are obvious from their titles.

### Accessibility of Power Plants

In any flying operation sustained engine power is a necessity. In trans-ocean transport it may well prove critical. In order to reduce the risk of power failures we have considered for years that the accessibility of power plants in flight would be of inestimable value. It was

not, however, until our latest type of Clippers were developed that manufacturers indicated that they could, without serious detraction from design plan, incorporate this feature.

The Boeing B-314 aircraft is provided with a companion way on each side of the flight deck leading through the wing to separate stations in the nacelles of each of the four engines. Although we have not won our point entirely, the entire engine not yet being accessible, these stations do provide swift access to the accessory end of each motor. Through these engine stations the Flight Engineer makes periodic visible inspection of the mechanical functioning of the aeroplane's engines and its delicate electrical, fuel and oil system. He also has available for his required and periodic inspection all main fuel lines, all control lines and all interior elements of the wing.

I have no way of quantitatively measuring the value of the accessibility thus permitted. But I can tell you that during the past two years in which this type of Clipper has been in operation, on both the Atlantic and the Pacific, we have had 431 cases of repairs made in flight. The affected power plants were kept going or else quickly returned to operation. In 64 of these cases, had the engines not been accessible, the causes of the failures were of such a serious nature that the ship would have been forced to return to its nearest base with only three of its engines in operation.

The safety advantages of power plant accessibility are obvious. The savings of each such flight completed on schedule—compared with the total loss of revenue-production in a schedule failure—is in itself an economic factor of considerable importance. This record, we feel, requires that power plant accessibility will be in future specifications for ocean air transport aircraft.

## A Trans-Atlantic Flight

Ocean air transport is the most exacting of all flight operations. Given the most expert crews and the perfect functioning of all mechanical elements, ocean transport flying, with equipment now available, must be carried out with a high degree of accuracy or it cannot succeed.

As a margin for safety, to care for any circumstances which may not have revealed themselves through pre-flight study of conditions, we require each trans-ocean Clipper of the Boeing B-314 type, when used on flights of 2,000 miles or over, to depart with sufficient fuel, based on the foreseen conditions, to arrive at its destination with a fuel reserve adequate for an additional 4½ hours of flying. This reserve fuel load is a constant factor in all flight-weight computations. What we call the "actual fuel load" is computed after thorough analysis of all fore-

seeable conditions which the plane must encounter on its planned crossing. Obviously, only after the fuel load is determined, and the mail poundage is provided for, can we arrive at a figure for the allowable passenger and cargo capacity for that particular flight.

From any standpoint, the most critical element of ocean flying is fuel consumption. Adequate fuel is an obvious requisite for the safe arrival at destination. Efficient utilization of that fuel determines the efficiency of the flight itself.

The manner in which this is accomplished is described under the general term of " Scientific Control of Flight." Briefly, this is a process by which the most efficient performance of the aircraft is charted through the most favourable conditions available to that flight. How we undertake to make this process one of scientific accuracy may best be explained by describing the construction of an actual trans-Atlantic crossing. For this example, I have selected at random an average schedule—the Yankee Clipper whose eastbound flight on 13th–14th May is designated as No. 313 in the operating records of our Atlantic Division. The New York to Bermuda stage and the Horta to Lisbon sector are short range operations and contribute no particular problems. The records I have used are devoted, therefore, to the Bermuda-Horta flight, which represents the critical sector of this route.

This particular Clipper had returned from Lisbon to New York on 11th May. In the two days intervening before its departure a staff of 185 mechanics, including some 19 inspectors, operating through three eight-hour shifts, had performed work on and checked some 1,500 separate items required by our maintenance routine. Originally this process consumed six days ; our present ability to effect it in two days is an important item in our ability to secure an efficient factor of aircraft utilization.

Before the beginning of each crossing the crew assigned for that particular trans-Atlantic flight, accompanied by maintenance and service engineers, inspectors and mechanical specialists, puts the ship through a test flight on which air speed and all fuel-flow indicators are calibrated and all compasses are carefully compensated. It is not until the aircraft, as finally tested, has been accepted by the Captain, that the plan for the flight is formulated. The first step in this process is the final weather map, which represents the application of the most modern air-mass methods of weather analyses to trans-Atlantic flight problems. Supplementary to this general chart are upper-air weather maps reporting conditions at altitudes of 5,000 and 10,000 feet. A third chart represents a new departure. It is a third-dimensional or vertical weather chart, drawn to provide the pilot with an illustration of what conditions he is

to expect and to illustrate the clouds, rain, fog, and icing areas forecast on the route.

From these charts, the meteorologist divides the projected flight line into various zones. Each zone represents an area of more or less consistent winds, and the lengths of each are dependent upon the location of the various pressure areas and weather fronts along the route. These zone boundaries indicate the points at which a new track for the aircraft or a new flight level should be selected. From this map and the supplementary charts, the meteorologist then prepares a Flight Forecast. This reports the state of the weather, the amount, type and height of clouds, the estimated level at which freezing temperatures might be encountered, and wind direction and velocity at 1,000, 4,000, 8,000 and 12,000 feet. In addition, the meteorologist forecasts conditions at the point of destination and all alternates; gives such pertinent information as the location of fronts, the turbulence to be expected in such frontal areas, and points out any icing conditions which are likely to be encountered.

From this Flight Forecast the Captain and the Airport Manager evolve the Flight Time Analysis. This process considers the complete range of the mechanical ability of the aircraft to the conditions to be encountered or to be detoured either laterally or vertically in each zone. The Flight Time Analysis for the route is calculated for each of the four "primary" altitudes by the use of a computer which quickly gives the ground speed through each zone, determined from the wind, air speed and track projected through that zone. From these ground speeds the time required to pass through each zone and to complete the entire flight can be estimated.

From such computations a three-dimensional path of best conditions can be plotted for the flight, designed to yield the safest, most efficient speed, track and altitude for each sector of the route. With the establishment of such a path, an accurate plan of operation is determined. This is finally compressed into the estimated fuel consumption required for the completed flight from terminal to destination.

You will note that this Flight Time Analysis also includes a separate estimate of fuel consumption made for a possible three-engined operation. This three-engined operation data is used to determine our so-called "Point of No Return." Laymen are inevitably intrigued by this fatalistic expression. As a matter of fact it is merely a designation of that limit-point before which any engine failure requires an immediate turn around and return to the point of departure, and beyond which such return is no longer practical. Fuel reserve practice insures the

ability of the aeroplane to reach the port ahead on three engines in case failure should occur beyond that " Point of No Return."

Upon acceptance of the Flight Time Analysis by the Captain and Airport Manager, the First Officer determines what payload can be carried and computes the Weight-and-Balance Manifest. By this method he determines the location for all passengers and cargo so as to obtain the most favourable Centre of Gravity for the take-off, flight and landing. The Third Officer's duty is to assemble the various clearance manifests required by the governments along the route. The Flight Engineer proceeds with the fuelling and servicing of the plane, according to the detailed figures resulting from the Flight Time Analysis. The B-314s have a total tank capacity for 5,400 gallons of fuel. Operating gross weight on all long range flights is invariably 84,000 pounds.

After all the technical data has been compiled, as a last check on crew co-ordination a crew meeting is held immediately before departure, to review with each member the positions of all emergency equipment on the aircraft and an individual recitation drill is held on the correct procedure for each man for all emergencies, both in the air and on the water.

We are now ready for our departure. The take-off is accomplished with the Captain controlling the throttles and control surfaces, and the First Officer manning the flaps and the short-range radio telephone to the stand-by launch. During the take-off the Flight Engineer constantly checks cylinder head temperatures and oil and fuel pressures. Take-off power is 1,550 h.p. per engine at 2,400 revolutions per minute. The manifold pressure is 42½ inches. Take-off under normal conditions requires approximately 30 seconds from the time full power is applied until the aircraft leaves the water, after a run of approximately one-half mile. After the take-off the aircraft is held immediately above the water until an air speed of 105 knots is reached at which point full manœuvrability of the ship on three engines is assured. The engines are then pulled back to 1,200 h.p. each. This output is maintained by the Flight Engineer until all obstacles in the area are adequately cleared, generally at a height of 500 to 1,000 feet. At this point the engines are again throttled back to their climbing h.p of 900 h.p. and speed of 110 knots maintained until the selected cruising altitude is reached.

Once aloft, the Flight Deck routine is conducted strictly in terms of the mechanical conditions imposed by the Flight Time Analysis which, in turn, are based upon the tabulated analysis of the performance of the aircraft under the given combination of circumstances. It becomes a primary duty of the Captain to study the reports of his Second Officer

and Flight Engineer for any indication of conditions which might require modification of that flight plan. Any variation of the power plants or accessories, beyond certain prescribed limits, are immediately to be noted. Track made good compared with the projected course is also indicative, as are any serious variations in forecast weather.

Against this background of estimated and actual progress of the flight the Captain endeavours at all times to keep the aircraft flying under our standard long-range cruising formula at its most efficient airspeed, that is at the speed which will give the maximum miles of ground speed progress per gallon of gasoline consumed. As the gross weight diminishes in ratio to fuel consumed he must therefore continually reduce the power output in order to maintain, at all stages of the flight, the wing's most efficient angle of attack. At the end of this particular flight, for instance, the Flight Engineer's Log shows that the speed of the engines was successively cut to 1,200 revolutions per minute as the aircraft approached Horta. Because the gear reduction between the engine and propeller is 16 to 9, the propellers' revolutions per minute under this condition are reduced to approximately 675, at which speed the 14 foot 10-inch propellers appear to be moving very slowly indeed.

### The "Howgozit" Curve

Thus is each trans-Atlantic flight planned and conducted. But all the planning in the world would be useless unless it is executed with accuracy. To execute a plan accurately, it is necessary to have in hand an easily usable yardstick of performance. We have developed such a yardstick, which bears the very American title of a "Howgozit Curve." This is no mere pilot's nickname; it has now become a formal designation for this type of chart by our engineering department.

The "Howgozit Curve" was developed by our ocean captains under the leadership of Captain Harold Gray, now Chief Pilot of our Atlantic Division. Its purpose is to present to the crew aloft and the flight watch ashore a continuous flow of information as to the fuel reserve remaining aboard the aircraft and the fuel required for completion of the flight to destination, or back to the point of departure. Actually it consists of five curves which are required to clearly present this picture. Using the path selected in the Flight Forecast and performance charts for the plane and its engines, a curve of miles vs. gallons is plotted, showing normal four-engined fuel consumption for the flight in hand. The second curve shows gallons vs. hours of flying. The third curve is of hours vs. miles. Since we must assume that three-engined operation may be made necessary at any time, the fourth and fifth curves, showing miles vs. gallons are also plotted for three-engine "ahead" and "return"

conditions. Also on the chart at this time is plotted the " Point of No Return," which I have previously mentioned.

All of these curves I have so far mentioned are drawn in solidly to indicate that they are based on the Flight Time Analysis. As the flight proceeds, a constant record of the plane's actual fuel consumption is maintained. It is the First Officer's duty to draw alongside these solid forecast curves, dotted curves which indicate the actual performance of the plane. Deviations to one side or the other simply and quickly indicate to the Captain, as well as to the Flight Watch Officer at the terminal, whether the flight is proceeding satisfactorily or whether some factor, such as changing wind condition, is raising the fuel consumption, and at what rate that fuel consumption is being raised. Just as importantly the chart is of extreme value in forming any decisions as to the desirability of modifying at any point the track, the altitude, or of actually breaking off the flight for a return to the point of departure.

The flight I have described is purely typical from a technical viewpoint. Other flights, of course, have had to consider other weather, wind and altitude factors. Some have plotted and executed detours of several hundred miles in mid-ocean to avoid predicted areas of high intensity storms. One flight on the mid-Atlantic Route in mid-winter actually made its scheduled crossing of a few minutes less than 24 hours in the teeth of head winds which averaged 41.9 miles per hour for the entire course. Each flight, I can safely say, has made some contribution to our technical knowledge of the Atlantic and its exacting conditions in this first two years of service.

## Future Developments

Nor during this period has Pan-American been unmindful of its responsibility to carry forward the further development of this trans-oceanic service. Hardly had our initial schedules been instituted with the 84,000-pound Boeing B-314 Clippers when specifications were released to manufacturers inviting their bids on the design and development of a new type of Clipper which our experience indicated to be the required next step in trans-oceanic development. Construction contracts for such aircraft were actually let in June, 1940, with the first deliveries scheduled for early 1942.

I regret that I am not yet at liberty to disclose the technical details of these aircraft. I can, however, cite certain of the immediate and specific problems encountered in our trans-Atlantic operation, the presence of which we had in mind in their procurement.

1. During the months between 1st October and 1st April, sea-swells in the harbour of Horta exceeded three feet on 35 days out of each hundred

and exceeded two and one-half feet on 57 days out of each hundred. The effective solution of this cause of delayed schedules is an advancement of the practical commercial range of trans-oceanic aircraft so as to permit the continent-to-continent non-stop operation.

2. The consistently high velocity of westerly winds, particularly during the winter months, contributes not only to schedule cancellations but, even when such flights are technically feasible, impose unreasonable restrictions on payload. Wind aloft records maintained through the past two years indicate that higher cruising speeds of at least 75 to 100 miles an hour greater than those now available are desirable.

3. Finally, the recurring ice problem on the North Atlantic coast points to the advantages of landplane operations. Landplanes could also permit direct service between metropolitan airports on both sides of the Atlantic.

Let me emphasize once more that the aircraft of which we are now awaiting deliveries are by no means anything which I would think of offering as "the ideal" trans-Atlantic aircraft. It will be many years before depreciation and not obsolescence will be our concern. We have immediately before us advancing researches in such fields as boundary layer control, exhaust heat utilization and unorthodox power plants—to mention just a few.

Substantial advancement of ocean air transport, however, is by no means dependent upon further revolutionary developments. Refinement of details are productive of far-reaching results. The need for efficiency distinguishes a long-range ocean transport from other civil aircraft. For example, the latest type of short-range landplane, the Douglas DC-3, can make a flight of 750 miles, with forty-five minutes' fuel reserve, carrying a full load of twenty-one passengers. For such a normal assignment this aeroplane carries a fuel load of 450 gallons, weighing 2,700 pounds, which represents only 11 per cent. of its gross weight, or 33 per cent. of its useful load. By comparison the Boeing 314 operating over a route of 2,400 miles, with 4½ hours' fuel reserve, requires 4,000 gallons or 24,000 pounds of fuel, which constitutes 29 per cent. of its gross weight and 73 per cent. of its useful load. If some means can be found to increase the efficiency of the DC-3 by one per cent., this would increase its payload by only 27 pounds. If a corresponding increase of one per cent. could be made in the efficiency of the Boeing 314, however, we would gain no less then 240 pounds, or slightly more than the allowance for one passenger. Effort and expense are continuously justified for research whereby such efficiency improvements can be achieved.

## Conclusion

Of one thing we can be sure in this uncertain world—the advance of aircraft design is in dynamic forward motion. We can, I feel, look forward to wing loadings of 80 pounds; aspect ratios of 11; useful-to-gross weight ratios of 50 per cent. Efficient three thousand h.p. engines are in prospect. With advances such as these in the offing, who would be bold enough to predict the distant future?

In these past two years trans-Atlantic passenger service has already become a fact. It is no longer an adventure. It has become a vital link between the new world and the old. Before the next two years have passed, I believe we can, with confidence, look forward to frequent daily flights, operating on twelve-hour schedules, to bridge what was once a great barrier ocean and to bring our two great democracies into still closer union.

# WELFARE IN THE ROYAL NAVY[1]

By Captain R. W. Blacklock, D.S.O., R.N.

THE object of welfare is really the same for all three Services—the maintenance of morale of officers and men; but in application welfare in the Navy differs in many ways from the other two Services.

Before going any further, may I give you a brief outline of our welfare organization in the Royal Navy in peace-time. At the Admiralty the Director of Personal Services is responsible for the manning of the Fleet, and although Flag and Commanding Officers are naturally responsible for discipline and welfare in their commands, he is the authority and adviser on these subjects.

A branch of the Personal Services Department, separate from the manning side, deals with all these questions relating to discipline and welfare. This branch has, like others, expanded in war-time, and an extra officer is employed on the welfare side to act as a liaison and to co-operate with the other two Services and also co-ordinate the activities of the many philanthropic bodies and seamen's societies that work for the good of the seaman. It is my privilege to have been selected for this appointment, so that is why I am speaking to you here to-day.

In peace-time at home, generally speaking, the sailor is either on board his ship or else at his home port—Portsmouth, Devonport or Chatham. So, apart from looking after the men in their ships, our main energies are concentrated on looking after their requirements at these ports and their surroundings where the vast majority of their families live. Welfare Officers and experienced Lady Welfare Workers are attached to the depots, and they do untold good in helping men when they are abroad or away from their homes with their family, financial and other affairs. Many homes have been saved from being broken up by men hearing rumours or getting reports when they are abroad and confiding their case to their Commanding Officer who can deal direct with the welfare workers at the depots.

In ships the scope of welfare as it affects the maintenance of morale includes comfortable living conditions, so far as circumstances permit, good food, freedom from anxiety in regard to dependants and relatives, leave, and alleviation of monotony. As regards living conditions afloat,

[1]An address given before the Royal Society of Arts on 18th June, 1941, and reproduced here by kind permission of that Society and of Captain Blacklock.

the greatest care has to be taken to watch this point in the designing and construction of ships. Whilst in no way minimizing the great hardships which have to be endured and the additional risks taken at sea in war, many of these occur whether the country is engaged in hostilities or is at peace. A storm at sea can be equally unpleasant at any time and the danger as great. The fact remains, though, that in a ship a man has his Service home with him when he goes to fight and, although this home may sometimes be wet and shattered, he does not have to spend the long periods in trenches or isolated places under trying conditions as the soldier so often has to do.

As regards living conditions ashore—in training establishments, operational bases, etc., which quickly grow in war-time—the Navy is up against very much the same problem as the other two Services. Camps have to be started and establishments improvized for the purpose, and in these cases the welfare of the men has to be very carefully considered.

Good food is essential to the contentment of the sailor. Ships carry stocks of food on board, and the majority of modern men-of-war are equipped with refrigerating plants. In the larger ships a weekly menu is made out and identical meals served to men of all ranks ; individuals purchase extras such as sweets and cakes from the canteens which are run by N.A.A.F.I. In the smaller ships each mess (a small body of men) is issued with standard rations of meat, bread, butter, etc., and is credited with a monetary allowance which enables eggs, bacon, fish, etc., to be ordered from the canteen. Each mess prepares its own food and it is cooked for them. The provision of suitable cooks for small craft has been one of the many expansion problems, but a good system for the training of these men has now been established. The provision of regular hot meals in small coastal craft is often impracticable, with the result that there is need for restaurant canteens at the ports. These are provided either by the N.A.A.F.I. or one of the philanthropic bodies.

A man wants to be satisfied that his family have enough to live on, that they will be helped if they are in difficulty and that if possible they can communicate with him quickly when in trouble. The following are some of the provisions made to meet these requirements :

(*a*) Marriage allowance, children's allowance and dependants' allowance are paid.

(*b*) The War Grants Advisory Committee exists to sanction financial assistance where necessary.

(*c*) There is a Family Welfare Section at each of the three Home Ports under the Commodores with whom commanding officers can communicate direct, as I have mentioned before.

(*d*) There is an institution known as the Royal Naval Benevolent Trust. It is run by the Lower Deck for the Lower Deck, and it is actively supported by the Admiralty. It is in touch with the depot casualty sections, it assists dependants in cases of sickness and air raid distress, and advises about compensation claims, etc. It works in close co-operation with other societies, so that cases of distress throughout the land can be investigated and helped without delay.

(*e*) Special concession telegrams have been introduced which enable urgent messages to be sent at inland rates by W/T to the nearest base from which ships are operating. Homeward messages are similarly passed.

(*f*) Information is passed to personnel by the Admiralty by telegram in cases of damage to or loss of home and serious illness or death of nearest relatives.

Leave in war-time is governed by operational requirements, and therefore, except in the case of men returning from abroad or who are serving in shore establishments, it cannot be given to any prescribed scale. Leave is given when ships refit or are under repair. The small ships lay up for a few days every now and again to clean boilers, but in many cases full advantage cannot be taken of these opportunities on account of the cost of rail travel. Men in sea-going ships are now allowed four free travelling warrants a year, while those in shore establishments and depot ships are allowed two. These travelling warrants are in addition to those granted to a man if his home has been damaged by enemy action.

H.M. ships with complements of 100 and above are supplied with a radiogram and appropriate number of loud-speakers; 1,500 portable wireless sets for the large number of smaller ships and newly-formed bases and establishments have been given by the Nuffield Trust, and 4,400 by the R.N. War Amenities Fund. I will refer to this Amenities Fund later.

H.M. ships with complements of 500 and above are supplied with cinema equipment. Very good films are provided by the R.N. Film Corporation, and distribution to ships abroad has been maintained. Ashore, some establishments have been given projectors by the Nuffield Trust and the Amenities Fund. Other establishments have purchased equipment outright or obtained it on the hire purchase system through the Admiralty Shore Establishments Cinema Fund. Certain other training establishments are fitted with Service projectors for instructional purposes, and these can be adapted for recreational films at a small cost. Weekly film programmes of good quality are provided.

The Navy is now represented on the National Entertainments Board and rely on E.N.S.A. for this type of entertainment. In co-operation with the other two Services and the Ministry of Labour all shore establishments down to the outlying bases are now provided with all types of entertainment according to the size of the establishment. Part of the cost of this entertainment is supplied from our Amenities Fund and the remainder is done by the State. The quantity of entertainment given varies, of course, according to the place and its accessibility, but we aim at supplying large shows where there is a good theatre once a fortnight, and smaller places once a week.

The larger ships carry libraries which are provided by the State. An organization has been set up to supply unit libraries to bases for issue to destroyers and coastal craft. This scheme is subsidized by the Amenities Fund.

Indoor games are provided by various war gift societies and are distributed under Admiralty direction. The distribution of these games is linked up with war comforts generally, and there is a special section of the Admiralty which deals with this in close co-operation with the Personal Services Department. In addition, this section runs the Officers' Relatives Information Bureau. Widows of officers and other relatives can always go there for help and guidance on matters of pay, pensions, education of children, etc., and be given any news of the missing that is known and can be imparted.

With regard to sports grounds and sports gear, grounds are provided by the State. Grants for gear come from a sports fund which also buys additional gear for bases and establishments at wholesale prices.

Having mentioned the "War Amenities Fund" several times, I would like now to say a few words on our financial problems. In peace-time the final trading profits of N.A.A.F.I. are distributed partly to the Royal Naval Benevolent Trust and partly to the men of the Fleet, but in war-time the part allocated to the Fleet is paid into a War Amenities Fund, which is controlled from the Admiralty. The supply of all comforts, games, theatrical equipment, etc., other than those given by voluntary organizations, is paid for out of this Fund. Apart from the Amenities Fund and a small fund called the Minesweepers and Coastal Craft Fund, we have no other sources to draw on for welfare purposes, and therefore have to rely on small contributions which come in from this country and other parts of the world. You will see, therefore, that unless a grant is given by the Treasury for a specific purpose, we have small means at our disposal to deal with the daily welfare problems before us.

Canteens ashore are provided by the State and run by N.A.A.F.I. Philanthropic bodies and sailors' societies have been most helpful in meeting immediate requirements, and they have set up a number of recreation rooms, restaurants and hostels. While the N.A.A.F.I. canteens cater more for the immediate requirements of the sailor in light refreshments, chocolate, cigarettes, etc., on board ship or in naval establishments, the other canteens run by philanthropic bodies, sailors' societies, etc., provide to a great extent in addition the recreation and relaxation from Service discipline. These societies also provide canteen facilities in outlying stations not served by N.A.A.F.I.

So much for the brief general principles and methods that come into force when the Navy is expanded from peace-time to war-time requirements, and now for the more immediate needs due to the progress of the War.

The bombing of cities and towns in this country has turned the tables as regards anxiety. The wife or mother is naturally anxious about her husband or son at sea, but now the sailor in his turn is most worried about his family which is being blitzed at home. All ratings are advised to make their next-of-kin and relatives fill in a card with their particulars and carry it on them. When the wife or relative is either killed or found injured in hospital with this card on them, the fact is immediately reported to the Admiralty and the man informed without delay. If a man is in home waters and hears that his house has been bombed or his family is in trouble, he is, whenever possible, given compassionate leave—usually four days—to see his family and settle his affairs. There is an organized scheme, which incorporates the Soldiers', Sailors' and Airmen's Families Association, at most of our cities and towns run principally by the Army to help the men of the Services as soon as they arrive, and also written instructions are now being distributed to the Fleet to give the men advice on these matters. When brief news is broadcast that a town has been badly bombed and that casualties are heavy, the Admiralty immediately take steps to give all the particulars they can by signal to relieve the men's minds.

One of the great problems to-day is the provision of sleeping accommodation and canteen facilities for men on short leave from dockyard ports and depots. In peace-time many well-organized hostels and clubs are provided for the men, but lately a number of these have been bombed, leaving few facilities for them. To overcome this the Admiralty have requisitioned various buildings, and sailors' societies and philanthropic bodies have here stepped into the breach and run these places for the benefit and comfort of the men. Another problem is to give men in small ships rest when they come into their refitting ports for a few days

refit, and these ports are exposed to enemy action. We are starting a system of taking over houses in the country and getting sailors' societies to run these as rest hostels where men can easily be taken to and from the ships and given forty-eight hours complete rest. You will see, therefore, that the Navy owes a lot to some of these sailors' societies and philanthropic bodies who have quickly stepped in with their big organizations to give help whenever it is asked for.

The requirements of the men in the Merchant Navy are very similar to those of our own men and, although their welfare is the responsibility of the Ministry of Labour, we have a lot in common. One day a man may be in the Merchant Navy and the next day in the Royal Navy, especially in the Patrol Service ; they meet together in canteens, hostels and sailors' homes, and we arrange for them to attend our entertainments wherever practicable. A close liaison is therefore kept between the Admiralty and Ministry of Labour in order that we may assist each other with these problems.

I will conclude by saying that, although in application welfare in the Navy does differ in many ways from that of the other two Services, as time goes on, during the War, the problems of the welfare of men of the three Services become more and more similar. For instance, there is little difference if a man arrives on compassionate leave in a town where his house has been bombed whether he is a sailor, soldier or airman : he has got to be looked after and helped, and his family, too, as much as is humanly possible. In such cases the welfare officers of all three Services co-ordinate their organizations for the benefit of all. All orders on welfare matters that are issued by one Service Department and which affect either of the others are immediately passed on. In fact, by discussions and personal contact with our opposite numbers in the other two Services, I am sure I can say we do our utmost to co-ordinate our efforts for the general benefit of the men of the fighting Services.

## INTERNATIONAL SITUATION

### WAR ON TWO FRONTS

A SMALL section of our Press, which gathers in its coppers from readers who enjoy being told that everything is wrong in the worst possible world, is clamouring for " a Second Front." Where that Second Front is to be formed varies with the different schools of amateur strategy from Norway to Belgium and France, North Africa, Dakar, or the Caucasus. It is an intriguing pastime for those with leisure, and without responsibility, to devise short cuts to final victory; the allied cause suffered much in that way in the last war: it is a defect of democracy that in war time a commercialized Press is free to bring pressure to bear on susceptible politicians. The fighting Services have a lively recollection of what they had to endure from that perilous combination between 1914 and 1918, and their trust in the present Government is based on their belief that those in the highest places have profited by the mistakes of the so-called Great War and will not repeat them.

Nothing shook confidence in Mr. Asquith's and Mr. Lloyd George's leadership amongst those who were primarily responsible for giving effect to their war policy—the officers and men of the Navy, Army and Air Services—so much as the impression that their own professional chiefs were liable to be chopped and changed if they refused to subscribe to every twist and turn of political expediency or specious strategy. That does not mean there should not be any changes in high places in the Services during a war—the best of men grow weary under the weight of tremendous responsibility, and " new blood " often brings new ideas, and rekindles enthusiasm and inspiration. Changes of that kind are understood and appreciated by the rank and file; but what the Services dread is that ignorant clamour to " do something "; " save Finland, Norway, Belgium, France, Greece or Russia " (each in turn and " one by one ") may lead to our frittering away our military resources and so delaying that accumulation of strength which will enable us to strike effectively at the right time and at the right place. When and where those will be can only be known to the Government and their professional advisers, and it is fantastic to think that they are so supine that they have no policy, no plans, no personal eagerness to achieve victory.

Meanwhile, let us take stock of the strategic situation as it is—not as we would like it to be if we had all the necessary armies, tanks, aircraft and shipping to enable us to go anywhere and do anything. The essential things are :—

(1) There *is* a " Second (Western) Front."

(2) We *are* sending all *possible* aid to Russia on the Eastern Front.

It is not mere tradition or poetical sentiment that our boundaries are "every hostile coast "; it is—or should be—fundamental to our strategy. So long as we can keep our enemies within the confines of their own

(even their occupied) shores, they cannot win a war against us. The one element on which we were far better prepared for war than our enemies was the sea. The Western Front at the present time is the coast of Europe from the North Cape to the Franco-Spanish boundary, and the casualties to enemy shipping when it attempts to creep from port to port along that coast are an indication of the extent to which we are masters on that Front.[1] Germany has overrun a great part of Europe, but she is hemmed in by our control of the Atlantic, so that she can neither trade with nor trample on the New World. She has tried for two years to starve us out and to isolate us from our friends in America by waging guerrilla warfare with her submarines and surface raiders; but she has failed: *that* Western Front has been our sure shield in this as it was in the last war.

Yet our sea security has not been an excuse for lack of initiative—as the arm-chair critics would have the nation believe. Our experiences in Norway, Belgium, France, Greece and Crete have at *last* (we hope) taught us the futility of challenging the well-prepared mechanized hordes of Germany with weak and ill-equipped forces which can do no more than fight gallant, delaying actions before being overwhelmed or making brilliant withdrawals by means of the friendly sea. Instead of this frittering away of our armies, which had had no breathing space to mobilize and mechanize after years of neglect, the Royal Air Force is beginning to make itself felt and to strike at the very heart of the enemy's manufactures and morale to an extent he has never known in the whole of his history. Weeks of steady hammering culminated early in November in the heaviest air attacks ever launched. The effect of these operations are far greater than were those of many offensives on the land Front in the last war when, at the cost of huge expenditure of men and munitions, perhaps a few hundred yards of trenches were captured.

The time will come when Germany will have to yield all her ill-gotten territorial gains, but that is not likely to be through her armies being overwhelmed by the superior numbers of those of the Allies; nor for the present can we look to the disarmed, disorganized, and dispirited nations which have had to submit to the invader to play an effective military part in the formation of a "Second Front." Rather should we rely on the stranglehold of our Navy and the increasing aggression of our Air Force on the Western Front, and give any and all the support we can to that new-found and splendidly tenacious Ally of ours—Russia—on the Eastern Front, until the enemy's armed forces are worn out and his people dispirited with the hopelessness of their quest. Then the stage will be set for the last act; for that there is also a Southern Front, which may play a big part.

[1] The losses to Axis shipping, including those inflicted in the Mediterranean, are reported to be nearing the 5,000,000 ton mark.

In his speech on 6th November on the occasion of the 24th anniversary of the Russian Revolution, Stalin said "Modern war is a war of machines . . . . If the production of machines in the United States, Britain and Russia is combined, then we will acquire at least a threefold superiority in machines as compared to Germany." He added "We have already begun to receive tanks and aircraft. Britain has secured us with supplies of such raw materials as aluminium, tin, nickel and rubber."

At almost the same moment as Stalin was speaking, President Roosevelt, in addressing delegates to the International Labour Organization Conference, said ". . . . we must furnish arms to Britain, Russia and China, and we must do it now—to-day." Furnishing does not end with manufacturing; it implies delivery. No greater step towards making the United States' aid to both the Western and the Eastern Fronts effective has been taken than the amendment of the Neutrality Act so as to permit American merchant ships to be armed and to carry American arms and supplies as swiftly and directly as possible to where they are most needed.

The Prime Minister, in comparing the situation a year ago with what it is to-day, bade us take heart from the thought that then we stood alone. (The publication of Lord Gort's dispatches has revealed how parlous was the state of the Army after the evacuation of Dunkirk—and that condition could not have been made good even within the year.) But now, though she has taken heavy toll of the Russian forces and occupied yet more territory, Germany has had to pay a terrific price for her ephemeral victories.[2] If Hitler dared not invade Britain before he attacked Russia, we may well ask whether he is ever going to be in a better position to turn West with any prospect of success.

Since those days of our perilous isolation, too, the United States has undergone a steady change of heart. Slowly but surely the English-speaking peoples are closing their ranks against the common enemy. Even the nuisance value, which Japan is trying to provide for the benefit of her Axis friends, has failed to distract American attention from the main danger. China is still a big factor in the balance of power in the Far East. With her old enemy still unconquered, and her economic position more precarious than ever, Japan is in no good shape for issuing any new challenges. If she does so, it will be a policy of desperation rather than of hopeful anticipation: Germany can help her not at all; to her present commitments she will positively invite the addition of far more real encirclement. Incidentally it would lead to the United States coming into the War on all fronts.

[2] Stalin in the speech referred to stated that he put the enemy's losses at 4,500,000, as against Russia's 1,748,000 casualties. These figures may be optimistic, but they cannot be entirely devoid of foundation.

## DIARY OF THE WAR, 1941

20th July.—In the course of daylight operations over the Channel and northern France the R.A.F. attacked an anti-aircraft vessel, and a tanker which was severely damaged. Two enemy fighters were destroyed ; we lost two bombers.

**On the Russian front heavy fighting continued** in the region of Pskov (Estonian frontier) during the day, and throughout the day and night in the Polotzk–Nevel, Smolensk, and Novgorod–Volynsk areas. A German attempt to raid Leningrad did not succeed, eleven enemy aircraft being shot down.

The Germans announced that all operations were making successful progress, also the destruction of Russian detachments which had been surrounded. German, Hungarian and Rumanian troops were said to be " continuing the pursuit " in Bessarabia.

Enemy aircraft raided Alexandria.

Various changes in the Government were announced : Mr. R. A. Butler, Under-Secretary for Foreign Affairs, succeeded Mr. H. Ramsbotham (created Baron) as President of the Board of Education ; Mr. Brendan Bracken succeeded Mr. A. Duff Cooper as Minister of Information ; Mr. Duff Cooper succeeded Lord Hankey (appointed Paymaster General) as Chancellor of the Duchy of Lancaster, being charged with a special mission in the Far East.

Heavy bombers of the R.A.F. raided Benghazi (Libya) at night.

The R.A.F. made a night attack upon the harbour of Naples and the railway sidings in the vicinity.

At night the R.A.F. bombed Cologne and other objectives in the Rhineland, also the docks at Rotterdam. Offensive patrols were maintained over enemy aerodromes in France several of which were attacked. None of our aircraft was lost in the course of these operations.

21st July.—R.A.F. bombers attacked a factory at Lille and shipping off the French coast. Eight enemy fighters were shot down in the course of these operations and another during an offensive sweep over the Channel and northern France in the evening. We lost three fighters.

The Russians were still heavily engaged in the Pskov (Estonian frontier) region, and in the areas Nevel–Polotzk and Smolensk, the Germans making little or no progress. West of Kiev the battle continued in the Novgorod–Volynsk sector. Another German air raid on Leningrad was repelled. At night German aircraft made a mass raid on Moscow; twenty-two were brought down and little damage was done to the city.

The Germans claimed that their operations had now reduced the Russian armies to "unco-ordinated groups" capable only of local resistance.

At night the R.A.F. bombed Frankfurt and Mannheim and the docks at Cherbourg and Ostend. Our fighters attacked aerodromes in northern France. One of our aircraft was lost.

Air raids on England during the night caused only minor damage. A German bomber collided with one of our aircraft over the Home Counties and both were destroyed. Another of our aircraft crashed in the city of Lincoln.

22nd July.—In the early morning the R.A.F. carried out successful attacks upon a German military camp and other objectives on the West coast of Denmark.

Later in the day our bombers attacked the shipbuilding yards at Le Trait on the Seine. In extensive sweeps over northern France our fighters destroyed four German fighters for the loss of three.

Heavy fighting took place near Petrozavodsk (western shore of Lake Onega); in the Porkhov (Baltic–Leningrad) sector; in the Smolensk region; and round Zhitomir (Ukraine) South-East of Novgorod–Volynsk. At night a big German air raid on Moscow caused considerable damage by fire, but no military objectives were hit. Fifteen German aircraft were destroyed.

The Germans reported the continued pursuit of the Russians in the Ukraine; the encirclement and destruction of Russian detachments in other regions; and further gains of territory on the Finnish front.

The R.A.F. and Fleet Air Arm made successful attacks upon an enemy convoy off Pantellaria; two ships were sunk and two others and a destroyer were damaged.

The R.A.F. bombed Benghazi (Libya) at night.

In the central Mediterranean a large British convoy was attacked at night by an enemy submarine which was counter-attacked and probably sunk.

At night in home waters a German bomber was shot down by the guns of a convoy and its escorting ships.

The R.A.F. made a night attack upon Frankfurt, Mannheim and other industrial objectives in the Rhineland and western Germany; also on the docks at Dunkirk, Ostend and Rotterdam and enemy aerodromes in northern France. None of our aircraft was lost.

Enemy air raids during the night caused some damage and casualties in the East and North-East coastal areas of England.

23rd July.—The R.A.F. attacked enemy shipping off the Dutch, Belgian and French coasts, and bombed objectives near St. Omer. Objectives near Béthune were bombed late in the evening. In the course of all these operations eight German fighters were destroyed; we lost five bombers and five fighters, one pilot being saved.

The German battle-cruiser "Scharnhorst," having been located at the port of La Pallice, was attacked before nightfall and hit by at least one heavy armour-piercing bomb. One of our bombers destroyed two German fighters.

On the Russian front fighting continued in the Nevel–Polotzk, Smolensk and Zhitomir zones and on the Bessarabian front; at night, also, round Porkhov. The Germans reported progress "according to plan" in spite of strong local resistance and bad roads. At night the enemy made a heavy air raid upon Moscow but did little military damage.

R.A.F. bombers carried out a successful attack upon shipping at Trapani (Sicily) and raided the aerodromes between Trapani and Marsala.

Our convoy in the central Mediterranean (see 22nd July) was heavily attacked by high level bombers and torpedo carrying aircraft. Several of the enemy were shot down; we lost three naval aircraft but the crews of all were saved. H.M. destroyer "Fearless" was hit by a torpedo and had, subsequently, to be sunk by our forces.

The Suez Canal zone was raided by enemy aircraft.

The Vichy Government announced that Japan had demanded bases in Indo-China, as a temporary measure "to defend the territory against the de Gaullists, the Chinese and the British," and implied that this demand would be granted.

Patrols from Tobruk (Libya) carried out successful operations during the night. The R.A.F. made a heavy bombing attack upon Benghazi.

The R.A.F. made night attacks upon Frankfurt and Mannheim, the docks at Le Havre and Ostend, and an enemy supply ship, which was set on fire off the Norwegian coast. One enemy fighter was destroyed. We lost no aircraft.

The attack upon the German warship "Scharnhorst" at La Pallice was renewed by our heavy bombers during the night.

Our naval forces attacked at night a heavily escorted enemy convoy in the Straits of Dover, sinking at least one vessel and damaging others.

Two German bombers were destroyed during air raids on England and Scotland during the night, when bombs were also dropped in Northern Ireland and in Eire.

24th July.—In the afternoon large formations of **our bombers attacked the German warships "Gneisenau"** at Brest **and "Scharnhorst"** at La Pallice in what was the heaviest daylight operation yet carried out by the R.A.F. Several direct hits on the ships were secured. Cherbourg was also bombed; and attacks were made on the railway yards at Hazebrouck, when 12 German fighters were destroyed for the loss of six of ours. In the whole course of the operations, which began on the evening of the 23rd, against the German warships 15 of our bombers were lost, but 21 German fighters were shot down by our bombers and 13 by our fighters. We lost seven fighters.

**The Russians were heavily engaged** by day and night in the Porkhov, Smolensk and Zhitomir regions and at night at Petrozavodsk (Lake Onega) and Nevel–Polotzk also. A German air raid on Moscow at night did little harm.

Finland announced that her forces had reached the former frontier of the country and had penetrated into Russian territory.

**Our convoy in the Mediterranean** (see 23rd July) and its escort were attacked by E-boats, one of which was sunk and one damaged; one ship of the convoy was damaged, but proceeded under her own steam. Thereafter our ships were subjected to repeated air attacks, high level and low level bombing alternating with the action of torpedo-carrying aircraft; one of our cruisers and one destroyer were slightly damaged thereby. The convoy **reached its destination safely.** At least twelve enemy

aircraft were brought down; we lost three, but the crew of one was saved.

At night patrols from our forces in Tobruk (Libya) inflicted many casualties upon the enemy. The R.A.F. bombed Benghazi.

The R.A.F. bombed Kiel, Emden, Wilhelmshaven, and Rotterdam at night, also attacking airfields in northern France. We lost five bombers.

25th July.—The Russians continued their struggle against the German attempts to advance in the Porkhov, Nevel–Polotzk, Smolensk, and Zhitomir regions. Except round Porkhov, heavy fighting continued during the night, when Moscow was again raided by German aircraft.

The Germans reported continued progress everywhere, especially in the Ukraine and in Bessarabia, where the clearing up operations of the Rumanian forces were said to be nearing completion.

Italian aircraft were engaged at a high altitude over Malta by R.A.F. fighters who shot down five.

Patrols of Indian, Australian and British troops carried out successful night raids from Tobruk (Libya).

At night the R.A.F. bombed Hanover, Hamburg and Berlin. Attacks on aerodromes in northern France were made by our fighters. We lost nine aircraft.

26th July.—A "Fortress" aircraft, in the course of reconnaissance during the morning, bombed Emden. Our fighters attacked an enemy patrol vessel off Boulogne and shot down an enemy fighter.

On the Russian front the struggle in the Porkhov, Nevel, Smolensk and Zhitomir regions continued and, round Smolensk and Zhitomir, was maintained after darkness fell. Moscow was again raided by German aircraft at night.

Russian naval aircraft were reported to have sunk two enemy torpedo boats, one submarine and two tankers in the Baltic.

**An attack upon Valetta harbour** was made by small torpedo-carrying craft screened by E-boats. The enemy **was repulsed** by the shore defences and harried by R.A.F. fighters; eight of the small craft were sunk or destroyed and twelve E-boats shared the same fate, whilst three enemy aircraft were shot down. We lost one fighter, but the pilot was saved.

Our troops in Tobruk (Libya) had successful patrol encounters. At night the R.A.F. bombed Benghazi harbour.

The news from Russia was good : the only region between the Baltic and the Black Sea in which the Germans had made headway seemed to be the Ukraine where, by the end of the week, the fighting centred round Zhitomir some eighty miles West of Kiev. Russian reports indicated that the enemy had made progress on the Finnish front, where, between the lakes Ladoga and Onega, the Leningrad–Murmansk railway was threatened in the direction of Petrozavodsk. Actually all depended upon the powers of resistance of the Russian armies, and on this point the news was reassuring despite the astronomical figures of Russian losses in men and aeroplanes published by the Germans.

Rumours were current of an Axis threat to Turkey by the concentration of German armoured divisions upon the Bulgarian frontier, and in this connection the continued inertia of the enemy in North Africa was to be remarked. Moreover, the Russians reported that data collected for operations against European Turkey and the Straits had been captured from the Germans.

Our air offensive against Germany had been somewhat hampered by bad weather, but the news of the American-built " Fortress " bomber in action was a hopeful sign. The operations against Brest and La Pallice on the afternoon of 24th July gave some indication of the lines along which our " air invasion " of Germany might develop.

Japan appeared to be committing herself at last to a policy of aggression in the Far East, although it might be that she hoped to succeed in her penetration southward without open war with Great Britain and the U.S.A. A statement of the Vichy Government that the integrity of Indo-China was to be secured by collaboration with Japan and a Japanese announcement concerning the " joint defence " of Indo–China were made on 26th July. These explanations deceived nobody ; meanwhile, Japanese warships were cruising off the coast of Indo-China and Japanese transports were reported to be on their way South. Acting in concert with the U.S.A., Great Britain and the Dominions promptly " froze " Japanese credits and also ended their trade agreements with Japan.

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27th July.—During offensive patrols over the Straits of Dover R.A.F. fighters shot down at least one enemy fighter and damaged many others. We lost one aircraft.

The Admiralty announced that a German merchant ship had been intercepted in the South Atlantic.

On the Russian front the battle continued by day and night in the regions of Nevel, Smolensk and Zhitomir. The Germans claimed that the Battle of Smolensk, where Russian forces were

surrounded, was ending in their favour and that the pursuit of the Russians in the Ukraine continued " in spite of difficult road conditions." Gains of ground were reported on the Finnish front where the Finns claimed a success at Repola (North of Lake Onega).

Russian aircraft bombed Constanza at night and, in the Baltic, a Finnish warship.

R.A.F. fighters shot down two Italian aircraft off Malta.

Enemy patrols were repulsed on the Libyan–Egyptian frontier. At night the R.A.F. bombed Benghazi.

Japanese troops were reported to have arrived in Saigon (Indo–China).

In spite of unfavourable weather which restricted operations the R.A.F. carried out a successful night attack upon the docks at Dunkirk, laid mines in enemy waters, and attacked aerodromes in northern France. We lost one aircraft.

During the night German aircraft raided South-East England and London, where damage and casualties were caused. Four enemy bombers were destroyed.

28th July.—On the Russian front heavy fighting continued by day and night in the Smolensk and Zhitomir regions and round Nevel also at night. Russian counter-attacks inflicted heavy losses on the enemy. Moscow was attacked by German aircraft at night.

The Germans reported that Bessarabia was cleared, Rumanian troops having reached the Dniester estuary. The successful closing stages of the Smolensk battle were announced and in Estonia, West of Lake Peipsi, Russian forces were said to be surrounded.

Finland " as co-belligerent with Germany " broke off diplomatic relations with Great Britain.

In a very successful daylight attack upon the aerodromes of Sicily the R.A.F. destroyed 36 enemy aircraft of various types and damaged many others. We lost two aircraft.

On the Libyan–Egyptian frontier our patrols captured German prisoners and transport. At night our patrols carried out successful operations at Tobruk and the R.A.F. bombed Benghazi.

The landing of Japanese troops in southern Indo-China proceeded.

29th July.—The Russians were heavily engaged in the direction of Novorzhev (60 miles S.W. of Porkhov) during the day and by

day and night in the zones Nevel, Smolensk and Zhitomir. Heavy losses were suffered by both sides around Smolensk.

R.A.F. fighters drove off a strong formation of German bombers escorted by fighters which attacked our shipping off the coast of Cyrenaica. Four of the enemy bombers and two fighters were shot down.

**A protocol providing for the "joint defence of Indo-China" was signed by the Vichy Government and Japan.**

30th July.—The Fleet Air Arm delivered attacks on German shipping in the harbours of Kirkenes and Petsamo (northern Scandinavia). At Petsamo few vessels were found, so our aircraft concentrated upon the harbour works with great effect; at Kirkenes the German light cruiser "Bremse" was hit twice and at least four supply ships were hit, whilst four German aircraft were shot down. Strong air and ground opposition was encountered at both ports and 16 of our aircraft were lost.

In daylight, also, the R.A.F. attacked a German convoy in the Heligoland Bight, four enemy vessels being badly damaged and probably destroyed. We lost seven aircraft.

**On the Russian front heavy fighting continued** in the Novorzhev, Nevel, Smolensk and Zhitomir zones by day and by night when the battle was resumed about Porkhov. Russian aircraft bombed Ploesti and Sulina; three German air raids on Leningrad failed during the day and a night raid on Moscow had no better success.

The Germans reported the continued successful pursuit of the Russians in the Ukraine; progress on the Estonian front towards the North; and successful operations in the Smolensk region where Russian forces were said to be surrounded.

The R.A.F. effected much damage and destruction in an attack upon the Italian aerodrome and seaplane base at Elmas (Sardinia).

R.A.F. bombers made night attacks upon Benghazi, El Gazala and Bardia (Libya).

At night, in bad weather, our aircraft attacked industrial objectives in the Aachen and Cologne areas, also the docks at Boulogne. Three of our aircraft were lost.

31st July.—In the course of offensive operations over the Channel and the French coast our fighters destroyed two enemy fighters. We lost two, but one pilot was saved.

Russian resistance, with frequent counter-attacks, was maintained in the Porkhov, Novorzhov, Smolensk and Zhitomir areas. German aircraft attempted another raid on Moscow at night.

The R.A.F. attacked shipping in the harbour at Messina.

Patrol activity occurred at Tobruk and on the Libyan–Egyptian frontier. The R.A.F. attacked enemy aircraft at Zuara (Tripolitania), and at night bombed the harbour at Benghazi.

The Fleet Air Arm made a night attack upon an enemy convoy in the central Mediterranean.

1st August.—Successful daylight attacks were made by the R.A.F. upon enemy shipping in convoy off the Belgian coast. We lost two bombers and one fighter.

The Russians were still heavily engaged in the regions of Porkhov, Nevel, Smolensk and Zhitomir and, at night, around Novorzhov also. Progress towards Kiev was claimed by the Germans. At night an air raid on Moscow was carried out.

In the early morning British destroyers entered the roadstead of Alghero and the harbour of Porto Conte (Sardinia). The aerodrome at Alghero and the seaplane base at Porto Conte were bombarded; later, naval aircraft (Swordfish from the "Ark Royal") attacked with good effect.

R.A.F. bombers made a successful attack upon shipping at Lampedusa island (central Mediterranean). and attacked Borizzo aerodrome (Sicily).

The U.S.A. prohibited the export of motor fuels and oils for the use of aircraft to destinations outside the Western Hemisphere, the British Empire, and the unoccupied territories of countries resisting aggression.

At night the aerodromes at Candia and Maleme (Crete) were bombed by the R.A.F.

2nd August.—Our fighters shot down two enemy bombers into the sea off the British coast during the day.

"Fortress" aircraft on reconnaissance dropped bombs on the docks at Kiel. The R.A.F. also attacked a patrol ship off the Dutch coast and gun emplacements on the island of Ameland. Many offensive patrols were carried out over northern France by daylight, shipping and other objectives being attacked with success. Two of our aircraft were lost.

The Russians were engaged in the Estonian sector; fighting continued round Porkhov and Smolensk, and in the Ukraine

the battle spread towards Korostishev (70 miles W. of Kiev), and Byelaya Tserkov (about 60 miles S.S.W. of Kiev). German aircraft raided Moscow at night.

Germany claimed the surrender of 10,000 men, with much war material, West of Lake Peipsi (Estonia).

R.A.F. fighters intercepted an air attack upon our warships off the North African coast, shooting down five German aircraft and damaging many others. We lost three fighters.

In Libya our bombers attacked Misurata where defences were demolished and barracks damaged. At night a heavy raid was carried out upon the harbour at Benghazi, whilst the Fleet Air Arm bombed the aerodrome at Gambut.

At night the R.A.F. made a heavy attack upon Berlin and also did great damage at Hamburg and Kiel. The docks at Cherbourg were bombed also. In all these operations four of our aircraft were lost.

In Russia the German drive had by no means spent itself and by the end of the week a real threat to Kiev (capital of the Ukraine) seemed to have developed : the enemy advance due eastward was now supported by a thrust farther South, these operations being assisted by the situation in Bessarabia most of which appeared to be in German or Rumanian hands. The Russians were holding their own, at least, in the Smolensk (S.W. of Moscow) and Porkhov (S.W. of Leningrad–Moscow railway) regions, and still retained their hold on northern Estonia. There were no serious developments on the Finnish frontier. On the sea our Ally still controlled the entrance to the Gulf of Finland, frequent reports of Soviet successes against German convoys and their escorts having brought no denials from Germany. It was clear that after six weeks of strenuous German effort, involving the acceptance of heavy losses and the expenditure of much material, comparatively little had been accomplished towards bringing about the military and political collapse of Russia.

The military situation in Russia had its reactions elsewhere. There were reports of unrest in Greece and Yugo-Slavia and even in Bulgaria ; on 2nd August the enemy declared a " state of emergency " in Norway as though an Allied invasion were feared. The British air offensive against Germany continued in spite of unfavourable weather.

In the Far East the Japanese occupation of land, sea and air bases in Indo-China had been followed by the application of diplomatic pressure to Thailand. The pact signed by the Vichy Government on 29th July (q.v.) emphasized the helplessness of the French in the face of Japanese aggression, and Thailand, unsupported, could hardly

be expected to resist similar treatment. Although the action of America in controlling the bulk of her exports at the source would strengthen our hands in waging economic warfare against the Axis powers, the special measures already taken by Great Britain and the U.S.A.—to whom could now be added the Dutch East Indies—might not in themselves be sufficient to keep Japan in check.

On 29th July, in the House of Commons, the Prime Minister made a spirited answer to the critics of our system of war production and the results achieved thereby. He decided, very emphatically, against the appointment of a Minister of Production. He also took the opportunity to warn the nation against a too complacent attitude, with the reminder that the " invasion season " was at hand.

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3rd August.—During the day bombs were dropped at a place on the South-East Coast where some damage and casualties occurred. A German bomber was shot down into the Channel by one of our fighters.

R.A.F. fighters carried out several daylight operations over the Channel and northern France, attacking ships, aircraft on the ground, troops, gun positions and an aerodrome. Four enemy fighters were shot down ; we lost one fighter.

On the Russian front fighting continued in Estonia and in the Smolensk and the Korosten (90 miles N.W. of Kiev)–Byelaya Tserkov regions of the Ukraine. German aircraft raided Moscow at night.

The Germans claimed that the mass of Soviet forces " surrounded East of Smolensk " had been annihilated ; also that an enveloping movement by German and Hungarian troops in the Ukraine had cut vital railway communications.

The R.A.F. made a successful attack upon Italian fighters on the ground at Reggio (southern Italy), eleven enemy aircraft being destroyed and many others damaged.

The Admiralty announced further successes of our submarines in the Mediterranean : two supply vessels torpedoed and sunk ; a floating dock, heavily escorted, torpedoed within less than a mile of the Italian coast ; an Italian 6-inch gun cruiser (" Eugenio di Savoia " or " Emanuele Filiberto Duca d'Aosta ") hit by two torpedoes whilst in company with another 6-inch gun cruiser and screened by destroyers.

Squadrons of the S.A.A.F. flying Maryland bombers delivered a heavy and successful attack upon enemy gun positions in the

Tobruk area. Patrols from Tobruk were again active. At night heavy bombers of the R.A.F. attacked Derna, El Gazala and Martuba, also enemy shipping off the coast near Apollonia. Another formation bombed the shipping in the harbour at Tripoli.

At night 17 people were killed and 58 injured during an air raid upon the Suez Canal zone.

In unfavourable weather R.A.F. bombers attacked industrial objectives and communications at Hanover and Frankfurt-on-Main during the night. The docks at Calais were bombed also. One of our aircraft was lost.

Enemy aircraft dropped bombs at night at a point on the North-East coast of England causing damage and casualties.

4th August.—The Admiralty announced that H.M. auxiliary minesweeper "Snaefell" had been sunk.

The interception of the German steamer "Frankfurt," whilst attempting to run the blockade, was also announced by the Admiralty.

The Russians continued to engage the Germans in the Smolensk, Korosten and Byelaya-Tserkov regions; also around Porkhov and Kholm (75 miles S.E. of Porkhov). Moscow was attacked by German aircraft at night.

Germany claimed further successes in the Ukraine where Hungarian troops were said to have reached the river Bug; "an extension of the area of the break-through 63 miles South-East of Smolensk"; and the capture of the town of Taps in Estonia.

The Suez Canal zone was raided by enemy aircraft at night, casualties amounting to 90 killed and 109 injured. Some damage to property was caused.

Bombers of the R.A.F. and S.A.A.F. made night attacks upon Derna and Benghazi (Libya) causing much destruction. Off Misurata an enemy schooner was sunk.

5th August.—Bombers of the R.A.F. attacked an enemy convoy off the Dutch coast in the morning, securing direct hits on one ship. Off the German coast three patrol vessels were hit. Offensive sweeps were carried out by our fighters over the Channel and northern France during the day; low level attacks on an aerodrome near Cherbourg damaged a number of enemy aircraft on the ground. One of our fighters was lost.

H.M. trawler "Norland" shot down a German bomber.

The Russians were heavily engaged upon the Estonian front, and in the direction of Smolensk, Korosten, and Byelaya Tserkov. At night there was fighting round Kholm, and Moscow was again attacked by German aircraft.

At Tobruk (Libya) our troops were engaged in patrol encounters. Bombers of the R.A.F. and S.A.A.F. carried out night attacks upon Benghazi, Derna, Gambut, El Gazala and Misurata causing great destruction.

The arrival was announced at Singapore of further reinforcements including R.A.F. personnel and British and Indian troops.

Enemy aircraft dropped bombs over Malta during the night; three were shot down by our fighters.

The Fleet Air Arm made a successful night attack upon the enemy seaplane base at Augusta (Sicily).

The R.A.F., in spite of bad weather, carried out very heavy night bombing attacks upon Mannheim, Frankfurt and Karlsruhe, also Aachen and the docks at Ostend. In the port of Nantes a large supply ship was bombed. Nine of our aircraft were lost.

Enemy aircraft dropped bombs on the East coast of England and Scotland during the night, causing some damage and casualties.

6th August.—R.A.F. fighters carried out a number of offensive patrols over the Channel and the French coast: two tankers were attacked and one set on fire; enemy aircraft on the ground at an aerodrome near Cherbourg and anti-aircraft gun positions were also attacked. Our bombers damaged a ship in convoy off the coast of Holland. We lost two aircraft. Five German fighters were shot down.

The Russians were heavily engaged in the directions of Smolensk and Byelaya Tserkov and in northern Estonia. German aircraft raided Moscow at night.

The Fleet Air Arm bombed the aerodrome at Comiso (Sicily) and at night bombed and machine-gunned enemy aircraft on the ground at Gerbini.

In spite of dust storms our patrols continued their operations at Tobruk (Libya). Our bombers made a night attack upon Bardia. At night enemy aircraft raided the Suez Canal zone, casualties amounting to 30 killed and 35 injured.

At night the Fleet Air Arm attacked a heavily escorted convoy of six ships off the island of Lampedusa, sinking two large merchant vessels.

Despite unfavourable weather R.A.F. bombers made heavy night attacks upon Frankfurt, Mannheim and Karlsruhe. We lost eight aircraft; one of our bombers shot down a German fighter. Our fighters, one of which was lost, attacked aerodromes in northern France. Other night operations included the torpedoing of an enemy vessel off the Norwegian coast and the bombing of an aerodrome in Norway.

Bombs were dropped at a few points in East and South-East England during the night, causing some damage and injuries. Two German bombers were shot down.

7th August.—An enemy aircraft was shot down off the East coast of England by one of our fighters.

R.A.F. bombers with fighter escorts carried out two offensive operations over northern France. An aerodrome near St. Omer, shipping, and objectives at Gravelines were attacked. Ten of our fighters were lost; seven German fighters were shot down.

**On the Russian front heavy fighting continued** in Estonia and in the directions of Kholm, Smolensk and Byelaya Tserkov. By nightfall considerable forces were engaged about Kexholm (western shore of Lake Ladoga).

**Germany claimed a big victory North-East of Uman** (Ukraine) wherein the Soviet Sixth and Twelfth Armies were said to have been destroyed by Field-Marshal von Runstedt's Army Group with the loss of 200,000 men and vast quantities of war material.

Hungary announced that a successful " battle of annihilation " had been fought, with German assistance, on the river Bug (Ukraine).

At night the Russian Air Force raided Berlin.

General Wladyslaw Anders was nominated to command the Polish Army to be raised in Russia by agreement between the Polish and Soviet Governments.

The enemy convoy attacked on the previous night (q.v.) by the Fleet Air Arm was bombed by the R.A.F. when it was eastward of Kerkena (Tunisian coast). Two more large merchant ships were hit and probably sunk.

Our bombers made a successful attack upon the harbour at Tripoli (Tripolitania). At night the R.A.F. bombed Benghazi (Cyrenaica) and Tripoli.

Alexandria was bombed by enemy aircraft at night when one German bomber was shot down by our fighters.

The R.A.F. made a very destructive attack at night upon the armament factories at Essen. Dortmund and Hamm were also bombed. Smaller forces attacked aerodromes and other objectives in Denmark, shipping off the Dutch coast, and aerodromes in northern France. Four of our aircraft were lost.

8th August.—The Russians were still heavily engaged round Kexholm (Lake Ladoga), in Estonia and in the Smolensk and Byelaya–Tserkov regions ; also in the direction of Korosten (N.W. of Kiev).

Germany reported the capture of Korosten and the annihilation of a Russian force in the neighbourhood of Roslavl (60 miles S.E. of Smolensk). The Finns reported the conclusion of successful operations North-West of Lake Ladoga.

At night Russian aircraft attacked Berlin and German air forces bombed Moscow.

Our air forces raided the harbour at Catania (Sicily).

A Dutch submarine was announced to have sunk an enemy supply ship, proceeding in convoy in the Mediterranean, and to have damaged an auxiliary vessel.

Our bombers attacked Capuzzo, Gambut and Bardia (Cyrenaica). At night enemy aircraft raided the Suez Canal zone.

General Dentz, Vichy's High Commissioner for Syria, was interned with 35 of his officers because of the non-release of 75 British and Indian officers.

R.A.F. bombers carried out an attack upon the Corinth Canal during the night.

The R.A.F. delivered a heavy and very successful night attack upon Kiel. Hamburg was also bombed, and enemy supply ships in a fjord north of Bergen (Norway) were found and attacked by one of our aircraft. Four of our aircraft were lost.

9th August.—R.A.F. bombers, with fighter escorts, bombed objectives on the French coast near Gravelines. Later in the day several offensive sweeps were carried out over the Channel and northern France. Eighteen German fighters were destroyed ; we lost ten.

The battles near Kexholm, in Estonia, and in the regions of Smolensk, Korosten and Byelaya–Tserkov still continued. At night German aircraft carried out a raid on Moscow.

Aircraft of the Fleet Air Arm made a torpedo attack upon a large vessel at Syracuse (Sicily) and dropped bombs on Augusta.

Heavy bombers of the R.A.F. attacked the aerodrome at Eleusis (Greece).

R.A.F. bombers carried out successful attacks upon barracks, defences, transport, and ammunition and supply dumps at Misurata and Buerat (Tripolitania). At night an Italian attack at Tobruk was easily repulsed with heavy loss to the enemy. Our bombers made night attacks upon Tripoli, Bardia (where both the R.A.F. and Fleet Air Arm were engaged), Benghazi, Derna, and El Gazala.

A German bomber was shot down during the night by the fire of a group of our mine-sweepers.

Enemy aircraft dropped bombs at night in East Anglia and North-East Scotland causing some damage and casualties.

The German effort against Russia had intensified rather than relaxed. At the end of the week heavy fighting was in progress around Lake Ladoga (Russian Finland); in Estonia where the Russians were still in possession of the northern coast; and in the region about Smolensk, the enemy, according to his own account, having enlarged his territorial gains to the south-eastward. The movement to envelop Kiev by the North and South was making slow progress; but there was good reason to think that, from the Ukraine, the German movement south-eastward between the rivers Bug and Dnieper was beginning to threaten the Black Sea ports of Odessa and Nikolaiev.

During the week the German High Command issued a summary of the operations since the piercing of the so-called " Stalin Line " on 12th July, and assessed the Russian losses during the first six weeks of the campaign at 895,000 prisoners, 13,145 armoured fighting vehicles, 10,388 guns and 9,082 aircraft. These figures were promptly denied in an official Russian statement which made the following estimate of comparative losses :—

| | Men* | Guns | Tanks | Aircraft |
|---|---|---|---|---|
| German ... | 1,500,000 | 8,000 | 6,000 | 6,000 |
| Russian ... | 600,000 | 7,000 | 5,000 | 4,000 |

The existence of a fortified " Stalin Line " extending along the old Russian frontier was ridiculed in the Soviet statement.

The concentration of Japanese troops in Indo-China was practically completed early in the week, and there were reports of other concentrations in Manchukuo and on the Siberian frontier. It was unlikely that Japan would make any move against Russia whilst the issue of the German campaign remained in doubt, but diplomatic pressure upon

* Killed, wounded, missing and prisoners.

Thailand continued in spite of the clearly defined attitude of Great Britain and the U.S.A. Japan's policy had brought her to the brink of war with the Western Powers, but it was still uncertain if she were ready or even determined to precipitate hostilities in the Far East.

The Vichy Government's bad faith over the Syrian convention (see 8th August) rendered it all the more likely that she might succumb to Germany's demand for bases in North Africa, despite the effect which such submission would have upon American policy. Vichy's inability to preserve Indo-China from the Japanese had, however, done our cause no disservice in the French North African possessions.

Something of the achievements of the R.A.F. (with whom must be associated the Fleet Air Arm) during July were revealed by Mr. Attlee in the House of Commons on 6th August. Seventy air attacks had been made on German towns and 76 on towns in German-occupied territory. On the North Sea and Atlantic coasts 69 enemy ships (total tonnage 291,000) had been destroyed, damaged or put out of action by air attack. In the Middle East there had been 126 attacks upon various targets and 23 enemy ships (total tonnage 168,000) had been sunk, whilst another 30 ships were hit and considerably damaged. In addition to these shipping losses much, of course, had been accomplished by the Royal Navy.

During the three months May, June and July the losses of German and Italian aircraft in all theatres (excluding Russia) were officially computed at 1,057, but these figures did not include hostile aircraft destroyed by the Fleet Air Arm or by the guns of H.M. ships and of our merchant vessels. Our losses for the same period amounted to 661.

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10th August.—R.A.F. bombers escorted by fighters attacked enemy shipping off the French coast in the morning. One supply ship was hit twice and left burning; one enemy fighter was shot down. We lost two fighters and one bomber.

The Admiralty announced that H.M. destroyer "Defender" had been sunk.

In Russia fighting continued in the direction of Soltsi (40 miles N.E. of Porkhov), Kholm (75 miles S.E. of Porkhov), Smolensk, Byelaya-Tserkov, and Uman. At night both Moscow and Berlin were bombed from the air.

The R.A.F. bombed and sunk a collier at Lampedusa and shot down a German aircraft in the Mediterranean.

Bombers of the S.A.A.F. attacked by day enemy positions, transport and personnel in the neighbourhood of Bardia (Cyre-

naica). Very extensive raids upon enemy positions and aerodromes were carried out by the R.A.F. and Fleet Air Arm at night, Benghazi, Bardia, Tripoli and El Gazala being attacked.

Great Britain and Soviet Russia both assured Turkey that they would continue to respect her territorial integrity and would give her all possible help and assistance if she were attacked.

The Fleet Air Arm torpedoed a ship in the harbour of Syracuse (Sicily) and bombed the aerodrome at Gerbini during the night.

11th August.—The Russians were still heavily engaged in the regions of Soltsi, Smolensk, Byelaya Tserkov and Uman; and near Kexholm on the Finnish front, where Finland reported successful operations. Russian aircraft bombed and destroyed the bridge at Chernovody which carries the Bucharest–Constanza railway over the Danube. Air attacks on Leningrad were repulsed. At night Berlin and Moscow were bombed from the air.

Two German aircraft were shot down over the Mediterranean, one by the S.A.A.F. and one by the R.A.F.

The Suez Canal zone and Alexandria were raided by enemy aircraft at night. Our bombers attacked El Gazala, Bardia, Derna (Cyrenaica) and Tripoli (Tripolitania).

The R.A.F. bombed the chemical works at Cotrone (southern Italy) at night, also attacking Cariati.

Two enemy aircraft were shot down during attempted raids upon Malta during the night.

In bad weather the R.A.F. attacked at night Crefeld, Rheydt and München–Gladbach; the docks at Rotterdam; and aerodromes in France and the Low Countries. None of our aircraft was lost.

12th August.—**The biggest daylight operation yet carried out by the R.A.F.** against Germany consisted of attacks **upon the great Cologne power stations** at Quadrath and Knapsack. Fighters accompanied our bombers as far as Antwerp. At the same time other bomber formations attacked railways at St. Omer and the power station at Gosnay (Pas de Calais), whilst "Fortress" aircraft had as their objective De Kooy aerodrome, the port of Emden and special targets at Cologne. In the early evening a bombing attack was made upon the shipyards at Le Trait. Our total loss was twelve bombers and eight fighters; four German fighters were destroyed.

The heavy fighting in the Russian theatre of war died down. The Germans announced that in the southern Ukraine the pursuit of the Russians continued towards the Black Sea.

Changes in the Vichy Cabinet were announced, Admiral Darlan becoming Minister of National and Empire Defence.

R.A.F. bombers carried out night attacks upon the Benghazi area, Bardia and Derna (Cyrenaica) and upon Tripoli.

The Fleet Air Arm bombed the aerodromes of Catania and Gerbini (Sicily) at night.

At night in spite of bad weather the R.A.F. delivered a series of heavy attacks upon Germany, bombing Berlin, industries in the Magdeburg and Hanover districts, and Krupp's works at Essen. Objectives at Stettin, Kiel, Bremen, Osnabrück, Duisburg and Cologne, aerodromes in occupied territory, the docks at Le Havre, and harbours and shipping in Norway were also attacked. We lost thirteen bombers.

13th August.—The Russians were engaged in the directions of Kexholm (Lake Ladoga); Staraya Russa (south of Lake Ilmen on the Leningrad front); Smolensk; and Byelaya Tserkov. **It was announced that the town of Smolensk had been evacuated** "several days ago."

The Germans announced that German and Rumanian forces reached the Black Sea between Odessa and the estuary of the Bug. Transports off Odessa and Nikolaiev waiting to evacuate Russian troops by sea were said to have been bombed from the air.

Enemy aircraft dropped bombs on Nicosia and Famagusta (Cyprus) without doing any harm.

Casualties were caused in the Suez Canal zone by an enemy air raid at night.

At Tobruk (Libya) our troops carried out successful minor enterprises at night. Our heavy bombers attacked Tripoli.

The R.A.F. bombed the enemy aerodrome at Candia (Crete) during the night.

The R.A.F. attacked the Corinth canal at night (see also 8th August). Considerable landslides were caused along the banks, so that the passage of enemy shipping was prevented.

14th August.—In the course of daylight operations over France the R.A.F. bombed the docks at Boulogne and destroyed fourteen German fighters for the loss of five. An enemy supply ship off

the Frisian islands was bombed and sunk; one of our aircraft was lost.

**Heavy engagements occurred along the whole Russian front** from the White Sea to the Black Sea; fighting was particularly severe near Kexholm, in Estonia, and in the Staraya Russa and Smolensk regions. The Russians reported that they had evacuated the towns of Kirovograd (95 miles East of Uman) and Pervomaisk (on the river Bug 100 miles N.W. of Nikolaiev).

Germany claimed that Odessa was encircled by Rumanian troops and that German and Hungarian forces had appeared East and West of Nikolaiev; also that German mobile troops had reached Krivoy Rog (80 miles N.E. of Nikolaiev).

As the result of a conference held by Mr. Winston Churchill and President Roosevelt on the high seas **a joint announcement of the peace aims of Great Britain and the U.S.A. was published.** Also a message was sent to M. Stalin suggesting a Three Power Conference in Moscow to organize and allocate all material resources available for the fight against Germany.

At night the R.A.F. attacks upon Germany were made by over 300 aircraft, the main targets being industries and communications at Hanover, Brunswick, and Magdeburg. Subsidiary attacks were made upon the docks at Rotterdam and Boulogne. We lost twelve aircraft.

Heavy bombers of the R.A.F. made a night attack on shipping at Catania (Sicily) and on Augusta harbour. The Fleet Air Arm bombed the aerodromes at Gerbini and Trapani.

15th August.—German guns on the French coast shelled our shipping in the Straits of Dover.

Heavy fighting continued along the whole Russian front. At night Russian aircraft bombed Berlin and Stettin.

Aircraft of the Fleet Air Arm, which had attacked a Tripoli-bound convoy of five vessels escorted by destroyers on the previous night, attacked again and sank two large ships and one destroyer.

R.A.F. bombers attacked and hit two tankers and two schooners off the coast between Tripoli and Benghazi. Both tankers were sunk.

The arrival was announced at Singapore of strong reinforcements for the Australian Imperial Force.

During the night R.A.F. bombers carried out destructive raids upon the aerodromes of Berca and Binina and, in co-operation

with the Fleet Air Arm, attacked the ports of Bardia and Benghazi. Enemy gun positions at Tobruk were heavily bombed by the R.A.F. and S.A.A.F.

A successful night raid was carried out by the R.A.F. on the port of Catania (Sicily).

16th August.—Daylight operations of the R.A.F. over northern France included the bombing of railway communications and an aerodrome near St. Omer. Nineteen German fighters were shot down for the loss of four of ours. "Fortress" aircraft bombed the docks at Brest, and off the coast of Holland an enemy patrol vessel was bombed and set on fire.

An enemy bomber was shot down off the South-West coast of England.

In the evening a convoy was attacked by German aircraft. One of the enemy was shot down and two severely damaged by gun-fire; there were no casualties to our ships.

The Admiralty announced that one German and one Italian merchantman had been intercepted whilst attempting to run the blockade.

**The Germans reported that German and Hungarian troops had occupied Nikolaiev.** Heavy fighting continued on the whole of the Russian front.

A Dutch submarine was announced to have sunk an enemy steamship and a large sailing vessel in the Mediterranean.

The Fleet Air Arm made a successful night attack upon the harbour of Syracuse (Sicily), doing considerable damage to shipping, and dropped incendiary bombs upon the barracks at Cap Passero.

At night the R.A.F., in bad weather, bombed objectives in the Rhineland and the Ruhr, including Cologne, Düsseldorf and Duisburg. Attacks were also made on the docks at Rotterdam and Ostend. Thirteen of our aircraft were lost; one of our bombers destroyed a German fighter.

A number of people were killed when enemy aircraft bombed a town in South-East England during the night.

From Finland to the Pripet marshes the Russians held their own in a week of heavy fighting. Little success had attended the enemy's efforts to envelop Kiev, but his drive south-eastward between the rivers Bug and Dnieper towards the Black Sea gave him some hope of achieving a spectacular success which would have its effect in Germany itself and

throughout the East from the Balkans to Japan. It remained to be seen if Marshal Budyonny could extricate the bulk of his forces and rally them behind the Dnieper. Of Russia's continued resistance there could be no doubt, and her very effective propaganda now included a call to all Slavs to resist the aggressor.

What might be called the "peace-aims" set forth in the joint British and American announcement (see 14th August) revealed the U.S.A. yet more clearly as a partner—if not an actual belligerent—in the struggle against the Axis Powers. The announcement was calculated to forestall any "peace manœuvre" which Germany might make in the near future. Of more urgent importance was the proposal—eagerly accepted by the Russians—for a Three-Power conference in Moscow in order to consider how the resources of the Allies might best be utilized for the common good.

There were no fresh developments of importance in the Far East. Thailand appeared to be inclined to resist open aggression, but Japanese "penetration" of the country was a disturbing factor.

The Vichy Government had again been convicted of bad faith in regard to the observance of the Syria Convention and, with the increase of Admiral Darlan's powers (see 12th August), Vichy's rôle as a willing tool of Germany promised to become a more active one. In a broadcast speech on 12th August, Marshal Pétain betrayed that the French nation as a whole was opposed to the policy of his Government.

Among the more hopeful signs were a diminution of our shipping losses and a record of consistent success in our anti-submarine operations, although no official figures were published. Our air offensive against Germany proceeded on well calculated lines and its cumulative results were bound to relieve the pressure of enemy air forces on Russia. No less marked was the success of our air and sea forces engaged in continuous operations against the enemy bases and communications in the Mediterranean.

Many details were made available concerning the gathering strength of the forces provided by the Empire overseas. The Royal Canadian Navy possessed 13 ships and 1,774 officers and men at the beginning of the War; it now had 250 vessels and a personnel of 22,000 on active service. About 500 Canadian officers were serving in the Royal Navy. Australia had increased her training facilities for airmen so that it was necessary to send only a small proportion of pilots, observers, air-gunners and wireless-operators to Canada for training under the Empire Scheme; and all ground crews were now trained at home. The South African Air Force, which had started the War with only one squadron and a personnel

of 1,500, now had 2,000 pilots and totalled 25,000 men and women besides: a number which would probably be doubled when the results of the present air-training schemes were seen. The Indian Army now numbered 750,000 men and recruits were flowing in fast; much of its modern equipment and armament was manufactured in India.

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17th August.—A single enemy aircraft dropped bombs at a point near the South-East coast of Scotland and inflicted casualties by machine-gun fire.

Daylight operations of the R.A.F. included the torpedoing of an enemy tanker in the Channel and offensive sweeps over northern France during which seven German fighters were destroyed. We lost two fighters and one bomber.

Fierce fighting continued along the whole Russian front. The Russians announced that in the Ukraine the towns of **Nikolaiev and Krivoy Rog were evacuated** on this day. In Nikolaiev the dockyards were blown up. Russian aircraft raided Ploēsti at night.

The Germans reported that the pursuit of the defeated Russians "who are partly retreating in panic towards the lower Dnieper" was being continued.

The R.A.F. machine-gunned seaplanes in the harbour of Syracuse (Sicily).

In Libya enemy aircraft bombed Tobruk, where our patrols were successfully engaged. At night heavy bombers of the R.A.F. attacked Benghazi and Tripoli.

In the central Mediterranean at night aircraft of the Fleet Air Arm attacked five large merchant ships and a tanker escorted by six destroyers. The tanker was set on fire and one merchantman was sunk. Another merchantman was so damaged that the enemy beached her on Lampedusa island, where she was subsequently bombed and set on fire by the R.A.F.

In unfavourable weather 100 aircraft of the R.A.F. carried out night attacks upon West and North-West Germany, the main objectives being Bremen and the industrial districts at Duisburg. One of our bombers was lost.

Damage and casualties were caused at Hull by enemy bombers during the night.

18th August.—Escorted R.A.F. bombers attacked an industrial plant at Lille and other objectives in northern France. Our fighters

swept over northern Brittany, attacking an aerodrome and enemy troops with cannon and machine-gun fire. In the afternoon three enemy patrol vessels off the Dutch coast were bombed and sunk. Three enemy fighters were shot down; we lost three fighters.

The Admiralty announced that H.M. minesweeper No. 39 had been sunk.

Heavy fighting continued on the Russian front, the Russians evacuating Kingisepp on the Tallinn–Leningrad railway. Berlin was raided by the Russian air force and German aircraft attempted to raid Moscow.

**The Germans claimed the occupation of the entire region West of the Dnieper,** except for certain small bridgeheads, and stated that attacks had been launched upon Odessa, where much damage was done to Russian warships and transports by air attack.

Finland claimed successes North-West of Lake Ladoga near Sortavala.

Heavy bombers of the R.A.F. attacked Tripoli harbour during the night.

At night the R.A.F. bombed Cologne and Duisburg and the docks at Dunkirk, while our fighters attacked enemy aerodromes in occupied territory. We lost eight bombers.

Enemy aircraft dropped bombs at various points near the East coasts of England and Scotland during the night, causing some damage and casualties.

19th August.—In the morning R.A.F. fighters made an offensive sweep over northern France; later they attacked enemy coastal shipping in Ostend harbour, where many vessels were sunk. Our bombers attacked the railway yards at Hazebrouck and enemy shipping off the Dutch coast. Fourteen German fighters were shot down in the course of the day; we lost three bombers and fourteen fighters, from which four of the pilots were saved.

A German bomber which attacked a group of our minesweepers was shot down by their fire.

The Admiralty announced that H.M. submarine "Cachalot" was overdue and must be considered lost.

The Russians were heavily engaged near Kingisepp, Novgorod (north of Lake Ilmen), Gomel (midway between Smolensk and Kiev) and Odessa.

Germany reported successful operations in the southern Ukraine against the "few bridgeheads on the Dnieper still in enemy hands."

The R.A.F. drove off an enemy raid on Malta, shooting down three Italian aircraft.

At night the R.A.F. bombed Kiel and other objectives in North-West Germany, in spite of bad weather. Aerodromes in enemy-occupied territory were attacked. We lost two bombers.

German aircraft dropped a few bombs at points in East and South-East England during the night, causing some damage and casualties at a place on the South-East coast. One enemy bomber was shot down.

20th August.—R.A.F. bombers attacked in daylight an aerodrome near Alkmaar (Holland) and patrol vessels near the Frisian islands. Our fighters, during offensive patrols over the Channel and northern France, destroyed three enemy fighters; we lost two, but the pilot of one was saved.

On the Russian front heavy fighting continued in the regions of Kingisepp (Leningrad sector), Novgorod, Staraya Russa, Gomel and Odessa. Russian aircraft bombed the Berlin area at night.

**The Germans claimed** the capture of Kingisepp and Narva (Leningrad sector) and of Novgorod; also **a big victory to the North of Gomel,** with heavy Russian losses. In the southern Ukraine, Kherson (at the mouth of the Dnieper) was said to have been taken, and German aircraft were announced to have inflicted heavy loss upon the Russians fleeing by sea from Odessa and Ochakov (50 miles East of Odessa).

Finland announced successes on the western shore of Lake Ladoga and on the Karelian isthmus.

The R.A.F. made an attack upon the harbour at Syracuse.

Slight damage and some casualties were caused by an enemy air raid on Famagusta (Cyprus).

Enemy aircraft raided the Suez Canal zone at night.

R.A.F. bombers made a night attack upon the harbour at Benghazi (Libya).

At night the R.A.F. bombed an enemy supply ship off the southern coast of Norway and attacked a number of airfields in occupied France.

21st August.—The R.A.F. attacked the iron and steel works at Ijmuiden (Holland), also industrial and railway objectives in the St. Omer

and Béthune areas of France. E-boats and other shipping off the French coast were bombed. We lost 14 fighters, one pilot being saved. One enemy fighter was shot down.

In the evening a German bomber was shot down off the East coast of England.

The Russians were heavily engaged in the regions of Kingisepp, Novgorod and Gomel. Gomel was evacuated.

Germany reported progress on the front before Leningrad and in Estonia; also a Russian retirement behind the upper Dnieper, North-West of Kiev.

Finland announced successes North-West of Lake Ladoga and the capture of Kexholm.

A large formation of enemy aircraft were engaged by fighters of the R.A.F. and S.A.A.F. whilst on patrol over our shipping off the Egyptian coast. Two of the enemy were shot down and probably several others; we lost four fighters but one pilot was saved.

In Libya R.A.F. bombers attacked the enemy landing grounds at Gambut and Menastir; at night they dropped over twenty-five tons of bombs on Tripoli harbour.

Enemy aircraft raided Alexandria at night.

22nd August.—R.A.F. fighters carried out a series of offensive patrols over the Channel and northern France; attacks were made on shipping and on enemy aerodromes. Two German fighters were destroyed in combat.

An enemy aircraft was shot down into the sea off the East coast of England by our fighters.

On the Russian front heavy fighting continued in all sectors.

Germany claimed that German and Rumanian troops which had completely encircled Odessa were within nine miles of the city after breaking through strong Russian defences.

In Libya the enemy made a dive-bombing attack upon Tobruk without doing much damage. R.A.F. bombers attacked traffic on the Tripoli–Benghazi coast road.

In Abyssinia South African aircraft carried out offensive operations in the district of Azozo.

At night the R.A.F. resumed the offensive against Germany, bombing Mannheim. Le Havre, Ostend and Dunkirk and aerodromes in enemy-occupied territory were also attacked. We lost one aircraft.

A German aircraft was shot down over England during the night. No casualties from enemy bombing were reported.

23rd August.—The Russians were heavily engaged in the regions of Kingisepp, Novgorod, Smolensk, and Odessa.

Germany claimed progress on the Finnish front, both sides of Lake Ladoga ; an advance on Tallinn (Estonia) ; a victory South of Lake Ilmen where the Russians were said to have been thrown back across the river Lovat ; an advance across the upper Dnieper North-West of Kiev ; and, in the southern Ukraine, the capture of the Dnieper bridgehead at Cherkasy.

At night R.A.F. bombers dropped nearly twenty tons of bombs on the docks and oil depots at Tripoli (Libya). Objectives in the harbour and at Mellaha aerodrome were attacked by machine-gun fire. Other of our aircraft bombed enemy camps in the Sollum, Bardia and Gambut areas.

At the end of nine weeks' fighting there was no relaxing of the stupendous military effort of Germany against Russia. Some further progress had been made : the menace to the outer defences of Leningrad by the advance North of Lake Peipus was now very real ; the Leningrad–Moscow railway was threatened by the thrusts North (Novgorod) and South (Staraya Russa) of Lake Ilmen ; and in the southern Ukraine the main Russian resistance had now to be made on the Dnieper line. In addition, about the centre of the whole Baltic–Black Sea front, the Germans were beyond Gomel, whence a deeper penetration might strike at the Russian communications by endangering the railway junction of Briansk. Somewhere in the Smolensk region a Russian counter-offensive had been launched, but little was known of its size and scope.

Although Odessa might be expected to offer an obstinate resistance, the extending German hold upon the Black Sea littoral made all the more dangerous and significant the enemy intrigues in Iran. The fear of incurring German enmity, combined with a traditional distrust of Russia, had made the Iranian Government reluctant to resist German penetration, which had developed to such an extent as to call for prompt action by the Allies, if only to protect the country's oil supplies from sabotage.

Our sea and air ascendancy in the eastern Mediterranean was fully maintained and we were reminded that on Malta, apt to be regarded as forced to play a purely defensive role, were based continuous and very successful air operations against Sicily, southern Italy, and the enemy's sea communications.

There were some indications that the Vichy Government might conclude with the Germans a provisional peace treaty which would cede to the enemy certain war bases in unoccupied France and French North Africa. Growing unrest in unoccupied France was being strongly repressed by the Government.

Particulars were published concerning the strength of the Allied forces which were assisting the Royal Navy. The Free French manned nearly 50 vessels, the Royal Netherlands contingent about the same number, the Norwegians some 59, the Poles about a dozen; in all there were 190 fighting ships, manned by 1,200 officers and 13,500 men, taking their share in the work of convoy, escort, minesweeping and anti-submarine patrols. The merchant tonnage brought to the common cause by the different nations was: Dutch, 480 ships (tonnage 2,250,000); Norwegian, 720 ships (tonnage 3,250,000); French, 92 ships (tonnage 400,000); Belgian, 54 ships (tonnage 200,000); Greek, 240 ships (tonnage 1,000,000); Polish, 32 ships (tonnage 100,000).

Up to 16th August enemy shipping lost, captured, sunk or scuttled amounted to 4,007,000 tons, this total being made up as follows: German, 2,321,000 tons; Italian, 1,533,000 tons; Finnish, 34,009 tons; ships of other nationalities in enemy hands, 119,000 tons.

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24th August.—R.A.F. fighters carried out offensive patrols over northern France, attacking hangars, barracks, troops and gun positions. Little fighter opposition was encountered and no loss was sustained. One of our aircraft was lost on patrol over the North Sea.

The Admiralty announced that H.M. trawler "Brabant" had shot down a German bomber which attacked her.

The loss of H.M. submarine "Union," overdue, was presumed by the Admiralty.

Fighting on the Russian front was most severe in the regions of Kexholm, Smolensk, Gomel, and (in the southern Ukraine) Dniepropetrovsk on the Dnieper. In the Baltic four German transports were sunk.

In the Gulf of Sirte (Mediterranean) R.A.F. bombers attacked two enemy schooners and an escort vessel, sinking them all.

R.A.F. fighters drove off an attempted air attack upon British shipping in the Mediterranean and shot down two dive-bombers.

A British submarine made an attack upon three Italian 6-inch gun cruisers which were escorted by six destroyers and flying boats. The results of the explosion of the torpedoes could not be ascertained.

Air operations were carried out against Italian troops and positions in the Debarech area of Abyssinia.

At night heavy bombers of the R.A.F. attacked the harbour at Tripoli (Libya).

The R.A.F. night offensive against Germany was much restricted by bad weather, but communications and industrial objectives at Düsseldorf were bombed with effect. Three of our aircraft were lost.

25th August.—The Russians were heavily engaged in all sectors of the front. **Novgorod** (North side of Lake Ilmen) **was evacuated.**

In the Black Sea Russian warships sank a German submarine.

**The Germans** claimed to have **captured** the town of **Dniepropetrovsk** on the Dnieper.

To counter the German menace to that country, **British and Russian forces marched into Iran.** In the South, British and Indian troops entered at three points. A landing, with naval and air co-operation, was made at Abadan and a detachment secured Bandar Shahpur where eight German and Italian ships, all beached or damaged, were captured together with their crews; airborne troops were sent to give protection to British subjects in the Anglo-Iranian oil-fields. Other troops advanced from Khanikin (N.E. of Baghdad) and occupied the oil installations at Naft-i-Shah and the town of Qasr-i-Shirin without serious opposition. Leaflets explaining the reasons for the operations were dropped by the R.A.F. on Teheran and other towns. Our aircraft destroyed on the ground four hostile aircraft which were about to take off. In the North, Russian troops from the Caucasus advanced towards Tabriz.

The Iranian Prime Minister announced that British forces had attacked by land, sea and air and that all necessary measures had been taken to meet the attack.

At night hostile aircraft which raided Alexandria inflicted slight damage and few casualties.

Heavy night attacks were made by the R.A.F. against Tripoli and Benghazi (Libya), whilst aircraft of the Fleet Air Arm raided Bardia.

The R.A.F. night offensive against Germany was directed upon Mannheim and Karlsruhe in unfavourable weather. We lost six aircraft.

26th August.—The R.A.F. attacked enemy shipping off the German Frisian islands and off the Dutch coast, two vessels being sunk and others damaged or set on fire. Other attacks were upon aerodromes in northern France (St. Omer and Cherbourg areas) and upon an aerodrome in Belgium and patrol ships near Calais. We lost seven bombers and four fighters. One German fighter was shot down.

The loss of H.M. corvette " Picottee " was announced by the Admiralty, which also reported that the Norwegian (ex-American) destroyer " Bath " had been sunk.

Heavy fighting continued along the Russian front.

The Germans announced that after an engagement lasting several days the Soviet Twenty-Second Army had been destroyed East of Velikiye Luki (25 miles N.E. of Nevel) which was captured.

R.A.F. Mediterranean operations included one enemy vessel hit and another left sinking; the repulse of an Italian air-raid on Malta, three enemy aircraft being shot down and others damaged; the destruction of three German aircraft which attempted to attack our shipping; and the destruction of an enemy aircraft which had dropped bombs on Famagusta (Cyprus). At night two enemy aircraft which dropped incendiary bombs on Malta were driven away badly damaged.

Swordfish aircraft from H.M.S. " Ark Royal " were announced to have carried out successful operations against Sardinia where large areas of cork forest had been set alight by incendiary bombs. One enemy aircraft was shot down and another severely damaged.

An enemy fort was captured from the Italians in the Wolchefit area of Abyssinia, enemy positions here and nearer Gondar being attacked by the R.A.F. and S.A.A.F.

In Iran Indian troops cleared Iranian forces from the whole Abadan area in the vicinity of the oil installations, capturing prisoners and guns. Our troops from Khanikin occupied Gilan after slight opposition, and one column advanced towards the Paitak Pass on the Kermanshah road. The fortifications at this pass were bombed by the R.A.F. who dropped pamphlets on Isfahan, Shiraz and Kazvin.

As the result of naval operations in the Persian Gulf two Iranian sloops were reported sunk and four gunboats, a depot ship and a floating dock captured.

The Russians, moving South in three columns, occupied Dilman, Tabriz and Ardebil; also Lissar, a small port on the Caspian Sea. No opposition was encountered.

From this day Great Britain prohibited all exports to Iran except under licence.

Tripoli and Benghazi (Libya) were heavily raided by the R.A.F. at night.

At night the R.A.F. made a heavy attack upon the industrial quarters of Cologne, also bombing the docks at Le Havre and Boulogne. We lost three bombers. Raids were made by our fighters upon aerodromes in northern France.

One German bomber was shot down over England during the night.

27th August.—R.A.F. fighters made sweeps over northern France. Ten German fighters were destroyed for the loss of eight.

The Russians were still heavily engaged in the regions of Kingisepp, Smolensk, Gomel, Dniepropetrovosk and Odessa.

German aircraft attacked and sunk the Russian hospital ship "Sibir" in the Baltic.

Germany claimed a success near Salla (Finland).

In Iran the British and Russian advances continued to make good progress. British gunboats steamed up the Karun river and landed detachments at Bandar Mashur; the Khorramshahr area was cleared; our forces from Khanikin occupied Shahabad and Allabad, also brushing aside opposition at the Paitak Pass and reaching Karind.

The Russians were reported to be on the line Shut Marand–Ardebil–Hevir, having met little opposition.

The resignation of the Iranian Cabinet was accepted by the Shah.

In Paris M. Laval, former French Prime Minister, M. Déat and Major Durvy were shot at and wounded by a youth named Colette.

Changes were announced in the French North African Army commands, General Huntzinger becoming commander-in-chief. General Noguès remained only as Resident-General in Morocco; General Weygand retained his post as Delegate-General in French Africa.

Enemy aircraft raided the Suez Canal zone at night. The R.A.F. bombed Benghazi.

The Fleet Air Arm made a night attack upon an enemy convoy in the Mediterranean, causing an explosion on one ship.

The R.A.F. made a heavy night attack upon Mannheim and also bombed the docks at Boulogne, Dunkirk and Ostend. We lost no aircraft.

28th August.—A big daylight raid was made by the R.A.F. upon the docks and shipping at Rotterdam. Our fighters carried out a number of offensive patrols over northern France. We lost seven bombers and five fighters.

Heavy fighting continued along the whole Russian front. **The Russians** evacuated Dniepropetrovsk on the Dnieper, and at Zaporozhye **blew up the Dnieper Dam** which fed the Dniepropetrovosk power plant.

The Germans claimed the capture of the Russian bases Tallinn and Baltiski on the Estonian coast.

R.A.F. bombers hit, and probably sunk, two enemy vessels in the central Mediterranean.

The enemy made dive-bombing attacks upon Tobruk during the day. The R.A.F. and S.A.A.F. attacked Bardia and also Homs (Tripolitania). At night the Fleet Air Arm bombed stores and dumps at Bardia.

The new **Iranian Cabinet decided to cease hostilities against the British and Russian forces.** A flag of truce met the British troops advancing upon Kermanshah from Shahabad. The Russians were reported to have occupied Urmia.

Heavy bombers of the R.A.F. made a powerful night attack upon enemy aerodromes in Greece, nearly thirty tons of bombs being dropped. Much damage was done at Menidi and Eleusis. The aerodrome at Candia (Crete) was also attacked.

At night the R.A.F. bombed Duisburg, the docks at Ostend, and a number of other objectives in western Germany and occupied territory. Nine of our aircraft were lost.

29th August.—In R.A.F. operations over northern France and off the coast of the Low Countries during the day eight German fighters and two fighter-bombers were destroyed. We lost ten fighters but one pilot was saved.

Heavy fighting continued along the whole Russian front. The Germans announced considerable successes against Russian warships and transports which had attempted to " break out " of Tallinn.

The Führer's Headquarters announced that Hitler and Mussolini had conferred at a meeting which had taken place between 25th and 29th August.

R.A.F. and S.A.A.F. aircraft attacked Italian positions at Debarech (Abyssinia).

In Iran all resistance against the British occupation had ceased and conditions were returning to normal.

A very heavy raid on Tripoli was made at night by the R.A.F. who dropped twenty-five tons of bombs. Much damage was done to shipping and big stores of oil were destroyed. The Fleet Air Arm bombed dumps at Bardia.

The Fleet Air Arm made a night attack upon Gerbini aerodrome (Sicily) and torpedoed a heavily escorted merchant ship off the coast of Sicily.

In very bad weather the R.A.F. made a night attack upon Frankfurt, where railway yards and inland docks were bombed effectively, and Mannheim. Five of our aircraft were lost.

One German aircraft was destroyed over England during the night.

30th August.—R.A.F. fighters carried out a number of operations over the Channel and the French and Belgian coasts but encountered no enemy aircraft. Enemy shipping was attacked, two anti-aircraft ships being set on fire ; off the Norwegian coast another vessel was hit. We lost three aircraft.

The Admiralty announced the loss of H.M. corvette " Zinnia " and H.M. trawler " Thorbryn."

Heavy and indecisive fighting occurred along the whole of the Russian front. In Finland the **Germans and Finns announced the capture of Viipuri.**

The R.A.F. bombed the power house at Licata (Sicily).

In Abyssinia the R.A.F. and S.A.A.F. again attacked the Italian positions at Debarech.

The national troops withdrew from the oil areas of southern Iran, except for a small " token force " left at Kermanshah, under arrangements made by the local commanders. British

troops entered Hamadan and received a friendly reception. The Russian columns were reported to have reached Zinjan, Kazvin, Resht and, in the East, Meshed.

The R.A.F. bombed Tripoli harbour at night whilst the Fleet Air Arm attacked dumps near Bardia.

The aerodromes at Maritza and Calato (island of Rhodes) were attacked at night by heavy bombers of the R.A.F.

Aircraft of the Fleet Air Arm were successful in a torpedo attack by night upon a merchant vessel near Lampedusa island.

The weather was so bad that the R.A.F. night operations against Germany were confined to the bombing of the docks at Cherbourg and ground defences near the Dutch coast.

Another week of hard fighting in Russia had seen the threat to Leningrad develop, but the resistance of our Ally was still strong both in the coastal and Novgorod areas; moreover continuous and heavy rain had set in. The capture of Viipuri, Tallinn and Baltiski—not denied by the Russians—certainly improved the enemy's position on the Gulf of Finland. Repeated Russian counter-attacks towards Smolensk and Gomel appeared to have prevented further penetration by the Germans in the " centre " of the long battle front, and at many points below Kiev the Russians were reported to be counter-attacking across the Dnieper. Odessa did not appear to be hard pressed.

The well co-ordinated British and Russian action in Iran had succeeded quickly and at little cost. There was no mistaking the friendly feeling of the inhabitants, and it might be taken for granted that the terms exacted from the Iranian Government would provide proper safeguards for the future. The whole operation had been viewed with satisfaction in Turkey, still engaged in perilous negotiation with Germany.

Turkey perhaps had been impressed by revelations made by the British Ambassador at Ankara: the tonnage of British and Allied shipping sunk all over the world in July was the lowest in any month since the war began except for two months in 1940 before the collapse of France; during the last ten weeks Great Britain's average weekly imports of merchandise exceeded 850,000 tons; R.A.F. bombing raids had steadily increased from 1,100 in January to 3,900 in July, the weight of bombs dropped having mounted from 800 to 4,400 tons; between twenty and thirty American aircraft were arriving in the Middle East each week by the new ferry service.

The shooting of M. Laval and his associates had provoked wholesale arrests in Paris and other parts of France. Acts of sabotage in the

occupied territory were on the increase. Isolated revolts in the subjected Balkan countries had become more and more difficult to suppress and there were persistent reports of guerrilla warfare even in Crete.

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31st August.—The R.A.F. carried out extensive operations over the Channel and northern France. Industrial targets in the Lille area, the aerodrome at Lannion (Brittany), railway communications, and the ship-building yards at Le Trait were bombed. We lost two fighters; one German fighter was destroyed. A "Fortress" aircraft bombed objectives at Bremen.

The struggle on the Russian front continued with undiminished intensity. Germany claimed the capture of Haapsalu on the western coast of Estonia. At night Russian aircraft raided Berlin, Königsberg, Danzig and Memel.

The Admiralty announced further submarine successes in the Mediterranean: two large schooners sunk by gun fire; a supply vessel of 4,000 tons sunk; one ship in convoy sunk and another hit by torpedo; an Italian tanker, in a heavily escorted convoy, hit by torpedo.

In Iran a British detachment moved on from Kermanshah to Senna and made contact with Russian troops. Martial law was declared in Teheran. Russian detachments were reported to have made further progress, notably from Meshed in the North-East.

At night enemy aircraft raided the Suez Canal zone and Alexandria.

Heavy bombers of the R.A.F. raided the shipping and the harbour at Tripoli during the night; the road and railway West of the town and the aerodrome buildings at Mellaha were attacked; and Benghazi harbour and shipping were bombed. The Fleet Air Arm bombed the landing ground at Ras el Tin, the harbour at Bardia and dumps at Gambut.

The Fleet Air Arm also made a night attack upon enemy aircraft on the ground at Gerbini and Comiso (Sicily).

Despite very bad weather the R.A.F. attacked Germany in considerable force at night, the principal objectives being in the Essen and Cologne districts. In addition the docks at Boulogne were bombed, mines were laid in enemy waters, and patrols were active over northern France. We lost eight aircraft.

A large number of enemy aircraft operated over Great Britain during the night. Bombs were dropped at various points, damage

being caused at Hull where a number of casualties occurred. One German bomber was destroyed.

1st September.—R.A.F. fighters attacked an enemy convoy off the French coast. One of our aircraft was lost.

Heavy fighting continued on the Russian front. The Germans announced successful air raids against the railways in the Kharkov area and South-West of Moscow.

R.A.F. fighters and bombers operating against southern Italy attacked a train at Pozzallo and bombed shipping, munition factories and the railways and quays at Cotrone.

Tobruk (Libya) was heavily attacked by about one hundred enemy dive-bombers, but little damage and few casualties resulted. At night the R.A.F. carried out heavy raids on Tripoli and Benghazi, whilst aircraft of the S.A.A.F. and Fleet Air Arm bombed the southern landing ground at El Gazala.

The Fleet Air Arm bombed the aerodromes of Gerbini and Comiso (Sicily) at night.

At night the R.A.F. bombed objectives at Cologne. We lost one aircraft.

Enemy aircraft bombed a district of north-eastern England during the night, causing damage and casualties. Attacks elsewhere did little harm. Two German bombers were destroyed.

2nd September.—During the day the R.A.F. attacked and hit a heavily escorted supply ship off Dunkirk, our fighters shooting down two German fighters. In an attack upon a convoy off the Norwegian coast, a hit was secured upon an escort vessel and one large ship was severely damaged if not destroyed. Fighters carried out offensive sweeps over the Channel and northern France without meeting with any opposition. A "Fortress" aircraft bombed the port of Bremen. We lost two bombers.

Heavy fighting continued along the whole Russian front. The Russians announced that **Tallinn was evacuated** on this day.

At Tobruk (Libya) enemy batteries shelled the harbour area and our patrol activity continued. At night the R.A.F. bombed Derna, El Gazala and Bardia; the Fleet Air Arm attacked supply dumps at Gambut.

At night the Fleet Air Arm attacked an enemy convoy escorted by seven destroyers off Cape Spartivento destroying one large

merchant vessel, damaging several others, and causing great confusion.

The Fleet Air Arm also made night attacks upon the aerodromes of Comiso and Gerbini (Sicily).

The R.A.F. bombed Frankfurt and Berlin at night. Other towns in western Germany, including Mannheim, were also attacked, as well as the ports of Ostend and Dunkirk. We lost nine aircraft, but the crew of one bomber was saved.

3rd September.—Fighting continued in all sectors of the Russian front, particularly East and South of Leningrad.

The Admiralty announced that one of our submarines had attacked an enemy convoy approaching Benghazi, two large schooners being sunk. Our submarines had also attacked a supply ship North-West of Sicily and shipping in the approaches to Benghazi harbour.

Enemy aircraft made persistent attacks upon Tobruk, and upon our positions near the Libyan–Egyptian frontier where South African fighters shot down five enemy fighters without loss. At night bombers of the S.A.A.F. bombed dumps near Gambut; the Fleet Air Arm torpedoed and sank an enemy destroyer outside Tripoli harbour and bombed a large merchant ship.

At night the Cairo and the Suez Canal areas were raided by enemy aircraft. Little damage was done.

The Fleet Air Arm bombed and machine-gunned the aerodromes at Gerbini and Catania (Sicily) at night.

The R.A.F. made a night attack upon the docks at Brest. None of our aircraft was lost.

4th September.—The R.A.F. bombed industrial plant at Mazingarbe (near Béthune) and the docks at Cherbourg. A "Fortress" aircraft bombed the docks at Rotterdam. Eleven German fighters were shot down; we lost seven fighters and one bomber.

The Admiralty announced that H.M. cruiser "Hermione" had rammed and sunk an Italian submarine.

Fighting continued on the Russian front, the Germans claiming that all Estonia was now in their occupation; also that the "encirclement of Leningrad was proceeding," the city being under heavy artillery fire. Russian aircraft raided Berlin at night.

Two air engagements took place in the vicinity of Malta, our fighters destroying nine Italian aircraft and damaging others.

We lost two fighters. At night an attempted raid on Malta was repulsed, our fighters destroying one Italian aircraft.

The enemy convoy which was attacked off Cape Spartivento on the night of September 2nd–3rd (q.v.) was bombed by the R.A.F. in the harbour of Cotrone (South Italy) where it had taken refuge. One large merchant vessel was hit.

In Libya R.A.F. fighters made a successful attack upon a German camp near Capuzzo. At night the R.A.F. and Fleet Air Arm bombed Tripoli and Barce, doing much damage to buildings, dumps, airfields and aircraft on the ground.

**The U.S. destroyer "Greer" was** persistently but unsuccessfully **attacked by a German submarine** whilst carrying mails to Iceland. The destroyer counter-attacked with depth charges.

The Fleet Air Arm made a night attack upon the aerodromes at Gerbini and Catania (Sicily).

At night an R.A.F. bomber made a successful attack upon a tanker outside the French harbour of Granville. Another bombed a factory at La Pallice.

5th September.—Fighting continued in all sectors of the Russian front.

The Admiralty announced further successes of our submarines in the Mediterranean: one Italian 8-inch gun cruiser hit by torpedoes and seriously damaged; one large liner torpedoed "and almost certainly sunk"; one tanker sunk and one supply ship severely damaged whilst in convoy off Sicily; and another large supply ship sunk.

At night the R.A.F. made heavy bombing attacks upon Tripoli harbour, Derna, a motor transport camp South of Derna, Martuba, Bardia and El Adem.

6th September.—"Fortress" aircraft, from a high altitude, attacked shipping in the harbour at Oslo (Norway).

Fighting continued in all sectors of the Russian front.

The Admiralty announced that off the coast of Tripolitania one of our submarines had sunk the Italian liner "Esperia" (11,398 tons) which was in a very strongly escorted convoy; also that an Italian ship of the "Ramb" class had been sunk by submarine attack whilst in convoy between Taranto and Benghazi.

During the night enemy aircraft attempted to raid the Suez Canal zone. Two were shot down by our fighters.

In Libya at night the R.A.F. made heavy raids upon Benghazi, Barce and Berka, whilst the Fleet Air Arm attacked the landing grounds at El Tmimi, El Gazala, Martuba and El Adem. Enemy gun positions East of Tobruk were bombarded by the South African Air Force.

The Fleet Air Arm bombed the aerodromes of Comiso, Catania and Gerbini (Sicily) at night.

A convoy of three merchant ships escorted by three destroyers in the Sicilian Channel was attacked at night by the Fleet Air Arm ; two of the merchant ships were severely damaged.

The R.A.F. made a night attack upon the synthetic rubber factory at Huls in the Rhineland. Communications and other industrial objectives in western Germany were also bombed, and in an attack upon the harbour at Bergso island (Norway) a fish-oil factory was set on fire. Eight of our aircraft were lost.

After two years of war the situation at sea was more satisfactory than had at one time appeared possible, and the prospects for the future were hopeful. As regards the " Battle of the Altantic " we had survived the critical period which followed the collapse of France and were regaining a considerable measure of control over the submarine and aircraft menace to our shipping. Our ascendancy in the Mediterranean was becoming more marked than ever. In the air our growing strength had made possible a well maintained and steadily increasing offensive against Germany in the West, whilst in the Middle East our successful attacks against enemy bases and communications was the dominating feature of the struggle. Moderate estimates showed that 8,020 German aircraft had been destroyed by us since the beginning of the war, for a loss of 3,089. The Army at home had been welded into a powerful striking force ; and well armed, well equipped and well trained reinforcements, on a considerable scale, had been sent to the Mediterranean theatre and also to the Far East, where Japan by her deliberate acts had proclaimed herself a potential enemy.

Too much value could hardly be assigned to the tenacious resistance of Russia against the mighty German offensive which had absorbed so much of the Axis strength. Since the attack upon Russia was launched Great Britain had been almost immune from air raids and our air offensive in the West had been conducted under the most favourable conditions. Time had been given to us in which to fit ourselves to take the initiative ; we had now to furnish Russia, as far as lay in our power, with vital war material and to match our military effort with hers.

No great change was perceptible in the Russian theatre of war, where the struggle continued with undiminished intensity. Despite his claims the enemy had made little progress before Leningrad, the scene of his greatest effort; farther South, in the region Smolensk–Briansk–Gomel, Russian counter-attacks still persisted and the issue was still in doubt; the Germans were no nearer Kiev; they had made little or no headway along the lower Dnieper in the face of a very active defence; and Odessa was not yet closely invested. Finland, anxious about her food supplies, was reported to be disinclined for offensive action beyond her old frontiers.

Satisfactory terms with the Iranian Government had not yet been settled by the Allies; the fate of such refugees as the Mufti of Jerusalem and the rebellious Iraqi generals was still in doubt and the German Legation in Teheran was still open. Nevertheless an Anglo-Russian defensive zone through the Middle East to the Caucasus was now completed; the Iranian oil districts were safeguarded; and a line of supply from the Persian Gulf to Russia was assured.

At the end of the week Berlin issued officially a circumstantial account of the submarine attack upon the U.S. destroyer "Greer" (see 4th September). It was alleged that the destroyer, whose nationality was not known at the time, had been the aggressor. This was promptly denied by the U.S. Navy Department.

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7th September.—The R.A.F. attacked shipping off the Dutch coast where an enemy escort vessel was hit and blew up and a supply ship set on fire. Our fighters carried out several offensive sweeps over northern France. Two German fighters were shot down in the course of these operations; we lost two bombers and three fighters in the course of the day.

The Admiralty announced that H.M. submarine P.33 was overdue and must be considered lost.

Heavy fighting along the Russian front continued. The Germans announced that Finnish troops, advancing between the lakes Ladoga and Onega had reached the river Svir. Russian aircraft bombed Bucharest at night.

The R.A.F. made a successful night attack upon the harbour at Palermo (Sicily).

At night the R.A.F. made a heavy attack upon Berlin, also bombing Kiel, other objectives in Germany, and the docks at Boulogne. Hundreds of our bombers were employed and twenty were lost. Four German fighters were shot down. Our fighters

attacked a number of aerodromes in enemy occupied territory. We lost one fighter in these operations.

8th September.—The Admiralty and Air Ministry reported that during a gale in the Atlantic one of our aircraft had attacked and damaged a German submarine which was forced to surface and surrender. Aircraft observation was kept upon the enemy until naval forces arrived; when the gale moderated the submarine was boarded and her capture completed. She was brought in to a British port.

The War Office announced that a mixed Canadian, British and Norwegian force under Canadian command had been landed at Spitsbergen to anticipate an enemy attempt to seize the large supplies of coal available. The Norwegian mining community and some Russian miners were brought away with the expedition.

On the Russian front in the Smolensk region a 26-days battle terminated in the rout of eight enemy divisions and the Russian occupation of Yelnya (45 miles East of Smolensk).

The Germans claimed that their forces had reached the Neva, East of Leningrad, on a broad front and had taken the town of Schlüsselburg on Lake Ladoga by storm, thus completing the encirclement of Leningrad.

Moscow and Leningrad were raided by German aircraft at night.

The Supreme Soviet decreed the removal of the entire German population (about 600,000) in the Volga region on the ground that large numbers of these Germans were potential saboteurs or spies.

In Libya our aircraft raided the landing grounds at El Tmimi, Martuba, Derna and El Gazala.

Enemy aircraft raided Alexandria and the Suez Canal area at night.

At night heavy bombers of the R.A.F. attacked the Corinth canal. An attack was also made upon Heraklion (Candia) aerodrome, Crete.

R.A.F. heavy bombers made a successful night attack upon the harbour of Palermo (Sicily). The aerodromes of Gerbini and Catania were attacked also.

Italian aircraft made an unsuccessful night attack upon Malta, one enemy bomber being shot down by our night fighters.

The R.A.F. night offensive against Germany was directed upon Kassel. Objectives at Münster and other places in western

Germany and the docks at Cherbourg were bombed also. Nearly one hundred aircraft took part in these operations and none was lost. Two members of one crew lost their lives by accident.

Our naval forces made two night attacks upon two supply ships, strongly escorted, in the Channel. Both ships were torpedoed and sunk, whilst one German E-boat was probably sunk and an armed trawler was set on fire. Our loss was four men wounded. A motor torpedo boat manned from the Royal Norwegian Navy took part in these operations.

Dover was shelled at night by German batteries on the French coast. Air raids on Britain were on a very small scale; some casualties were reported from one place on the North-East Coast. One German bomber was destroyed.

9th September.—The Admiralty announced that light naval forces, under the command of Rear-Admiral P. L. Vian, operating against German convoys supplying troops on the Murmansk front, had sunk a German destroyer, an armed trawler and another vessel. Also the German light cruiser "Bremse" was believed to have been sunk. We sustained no casualties.

Heavy fighting continued on the Russian front, the Germans pressing hard against Leningrad and their aircraft making repeated attempts to raid the city.

The Admiralty announced that in the central Mediterranean one of our submarines had torpedoed and sunk a large Italian schooner; another submarine had shelled two lighters, and probably sunk one, off Benghazi harbour.

In Libya the R.A.F. raided Derna and Capuzzo, the S.A.A.F. attacking Bardia. At night the Fleet Air Arm bombed the aerodromes at Gambut and Menastir.

The S.S. "Sessa," a Panamanian ship operated by a United States firm, was reported to have been torpedoed and sunk South-West of Iceland; the sinking of the U.S. steamer "Steel Seafarer" by aeroplane bomb in the Red Sea on 7th September was also announced.

In Iran the Government accepted the Anglo-Russian terms which included the closing of the Axis legations and the handing over of German nationals.

Enemy aircraft attacked R.A.F. stations in the Suez Canal zone at night. Two were destroyed by our night fighters.

Heavy bombers of the R.A.F. made a successful night attack upon the power station, ferry ship and landing stages at Messina.

The Fleet Air Arm bombed and machine-gunned the aerodrome at Castel Vetrano.

10th September.—R.A.F. fighters carried out offensive operations during the day, attacking gun-positions in North-West France and enemy ships in the North Sea. We lost one aircraft. An enemy convoy was attacked off the coast of Norway in the afternoon; one supply ship was torpedoed.

Heavy fighting continued on the principal sectors of the Russian front, the Germans reporting "constant and successful operations."

Russia strongly protested to Bulgaria against the German utilization of her territory as bases for attacks upon Odessa, the Crimea and the Caucasus.

The Germans declared a "state of emergency" in Oslo.

General Dentz, former Governor and Commander-in-Chief of Syria and the Lebanon, arrived at Marseilles.

The R.A.F. and the Fleet Air Arm in considerable force made night attacks upon Benghazi, Martuba, Gambut and Derna (Libya).

In Sicily the R.A.F. attacked at night the train ferries, landing stages and a ferry power house at Messina.

Operating at night from home bases, heavy bombers of the R.A.F. attacked objectives in northern Italy, the principal target being the Royal Arsenal at Turin.

11th September.—During air attacks upon one of our convoys off the East Coast, H.M.S. "Vimiera," an escort vessel, shot down one enemy aircraft; another of the enemy was badly damaged. One of our merchant ships sustained some damage but reached port safely.

The Admiralty announced that H.M. auxiliary vessel "Tonbridge" had been sunk.

Heavy fighting continued in the principal sectors of the Russian front.

Bombers of the R.A.F. sank an enemy merchant ship in the Ionian Sea.

The Admiralty announced that one of our submarines had sunk an Italian tanker in the Aegean Sea.

The American ship "Montana," flying the flag of Panama, was torpedoed and sunk on her way to Iceland with a cargo of timber for the U.S. Government.

In a broadcast speech President Roosevelt announced that from now on any German or Italian warship which entered "waters the protection of which is necessary for American defence" does so at its own peril.

An enemy attempt to bomb one area of the Suez Canal zone at night was intercepted by our fighters who shot down one of the raiders.

At night our aircraft carried out a heavy attack upon Benghazi (Libya) and on their return journey they machine-gunned transport and stores along the Benghazi-Tokra and Barce-Slonta roads.

Heavy bombers of the R.A.F. made a night attack upon ships and the dry dock at Palermo (Sicily). The Fleet Air Arm bombed a munitions factory at Licata and a railway station near Ragusa, finally attacking Licata harbour with machine-gun fire.

Aircraft of the Fleet Air Arm attacked an enemy convoy in the central Mediterranean during the night, sinking one large merchant ship and damaging another.

The R.A.F. night offensive against Germany included raids upon Kiel and the Baltic port of Rostock. The docks at Le Havre, Boulogne and Haugesund, an aerodrome near Stavanger, and enemy shipping off the Norwegian and Dutch coasts were also attacked, three vessels being hit. We lost three aircraft.

12th September.—In the afternoon the R.A.F. attacked an enemy convoy off the Dutch coast, setting one large ship on fire. Our fighters carried out offensive operations over the North Sea and the Dutch coast. One German fighter was shot down; we lost one fighter.

During the course of further operations against the enemy's sea communications with his Arctic front, carrier-borne naval aircraft attacked German shipping in the Bodö area of the Norwegian coast; one supply vessel was sunk and others damaged and, on land, an aluminium works was set on fire and an electric power station also bombed. None of our aircraft was lost.

Heavy fighting continued along the Russian front. The Russians evacuated the town of Chernigov (on the river Desna, 80 miles N.E. of Kiev). The first snow was reported from the Leningrad region, where the German pressure was maintained. The Germans announced favourable progress generally in spite of bad weather and difficult country. At night Russian aircraft raided Bucharest.

The enemy convoy attacked in the central Mediterranean by the Fleet Air Arm on the previous night (q.v.) was bombed by the R.A.F. by daylight, two more merchant ships being hit. After darkness had fallen the attack was renewed when the convoy was approaching Tripoli. Hits were obtained on seven ships, four of which were set on fire; not one vessel in the convoy escaped damage.

At Tobruk (Libya) our patrols were active and enemy dive-bombers attacked at night. South African aircraft bombed the landing grounds at Gambut and El Gazala during the day and the Fleet Air Arm made a night attack upon Bardia and Gambut landing grounds.

Heavy bombers of the R.A.F. raided the landing grounds at Heraklion (Candia) and Maleme in Crete during the night.

The Fleet Air Arm made a night attack upon the aerodromes at Gerbini and Catania (Sicily).

The R.A.F. in unfavourable weather made night attacks upon Frankfurt and a number of objectives in the Rhineland, the docks at Cherbourg, the port of St. Nazaire, and enemy shipping off the Frisian islands. Two of our aircraft were lost.

A small number of German bombers raided Britain during the night. Two of them were shot down.

13th September.—Offensive operations were carried out by R.A.F. fighters over the Channel and enemy-occupied territory during the day. One German fighter was shot down.

Heavy fighting continued along the Russian front. The Germans claimed that their troops had "forced their way into the Leningrad fortifications" and that the city was still more closely encircled. A German attempt to land on the island of Oesel (entrance to the Gulf of Finland) was repulsed by Russian land, sea and air forces. Four enemy transports were sunk and two others and several enemy destroyers damaged.

The Netherlands Government announced that one of Her Majesty's submarines operating in the Mediterranean had sunk an enemy supply ship.

The R.A.F. bombed enemy positions south of Gondar (Abyssinia).

At night our troops at Tobruk carried out a series of successful raids which were followed by an enemy attack; this was repulsed, three German tanks being captured.

R.A.F. heavy bombers made night attacks upon Tripoli, Benghazi and Barce.

The Fleet Air Arm bombed Gerbini aerodrome (Sicily) at night.

At night the R.A.F. made a heavy attack upon Brest where the German warships "Scharnhorst" and "Gneisenau" were still lying. The docks at Le Havre were bombed, and fighter aircraft attacked aerodromes in northern France destroying one enemy aircraft. We sustained no losses.

In Russia another week of heavy fighting, with heavy losses on both sides, had somewhat clarified the situation. Leningrad, even if not completely encircled as the Germans claimed, was now the scene of a "fierce and unprecedented struggle," the enemy apparently risking everything for a quick decision; the Russian victory at Yelnya, East of Smolensk, and successful counter-attacks farther South in the Briansk region constituted a notable setback for the Germans, but the Russian evacuation of Chernigov implied another threat to Kiev and eventually perhaps to the Russian positions along the lower Dnieper. At Odessa the Germans and Rumanians had made no progress.

The Russian protest to Bulgaria (see 10th September), however, showed that our Allies were prepared for a new German thrust along the Black Sea littoral—in the whole Russian theatre of war the region most favourable for military operations so late in the year.

Russia's claim on available war supplies was, of course, not to be disputed and the Prime Minister stated on 9th September that much material which would have come from the U.S.A. to Britain was now being diverted to Russia.

Mr. Churchill also had some good news to impart: during July and August, British and Allied shipping losses added together did not amount to much more than a third of the Axis tonnage sunk by our aircraft and submarines.

Our intensified sea and air activity against the enemy bases and communications in the eastern Mediterranean and North Africa were doubtless regarded by the enemy as the prelude to a British offensive in North Africa. He was known to be strengthening his forward positions inside the Egyptian frontier.

The expedition to Spitsbergen had insured that its large coal supplies (excellent bunker fuel and also valuable for the manufacture of synthetic oil) were denied to the enemy. The coal dumps were burnt and the mines wrecked, with the full acquiescence of the Norwegians.

The sinking of American ships (see 9th and 11th September) could only have one effect: that of bringing the U.S.A. nearer to open war with the Axis powers, for the "incidents" had become too numerous and too deliberate to be answered by a mere declaration of policy.

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14th September.—In disposing of a German claim that twenty-eight merchant ships of a total tonnage of 164,000 had been sunk by submarine and air attacks upon an Atlantic convoy, the Admiralty announced that three ships had been lost by submarine action and five by air attack; the great majority of the convoy had reached port safely. One submarine had been attacked by H.M. sloop "Deptford" and H.M. destroyer "Velox" and possibly damaged.

Heavy fighting continued on the principal sectors of the Russian front. Kremenchug (on the left bank of the Dnieper 160 miles S.E. of Kiev) was evacuated by the Russians. The Germans claimed to have made further inroads upon the Leningrad fortifications, Russian counter-attacks supported by heavy tanks having been repulsed.

The arrival in Russia of a Wing of the R.A.F. was announced.

A strong force of South African bombers attacked and dispersed enemy transport and armoured fighting vehicles in the Libya–Egypt frontier area, where two enemy columns made a reconnaissance in force and were heavily engaged by our forward troops. British and South African mechanized units captured ten German tanks for the loss of one armoured car. Our fighters made a successful attack upon the Gambut landing ground, and this attack was renewed at night by the Fleet Air Arm. In all these operations 14 enemy aircraft were destroyed and many more damaged; we lost seven, but two pilots were saved. At night heavy bombers of the R.A.F. attacked Benghazi, Bardia and Tripoli.

15th September.—The R.A.F. made daylight attacks upon an escorted convoy off the Frisian islands, sinking one ship and damaging another. Shipping in the harbour of Haugesund and on the West coast of Norway, and a factory on the Norwegian coast were also attacked. Our fighters were active over the Channel and enemy-occupied territory, shooting down one German fighter. Our losses in all these operations were one bomber and one fighter.

The Germans claimed to have secured bridgeheads over the lower Dnieper after heavy fighting and to have advanced eastward

from the river. Parts of three Soviet armies (Eleventh, Twenty-Seventh and Thirty-Fourth) were said to have been decisively defeated in the area South of Lake Ilmen after a struggle lasting several weeks. A German attempt which began on the previous day, to land on the island of Oesel, was reported to have been repulsed.

Replying to the Soviet Note of 10th September, Bulgaria disclaimed any aggressive intentions towards Russia.

The names of the members of the British mission to accompany Lord Beaverbrook to Moscow were announced: they were Capt. H. H. Balfour (Parliamentary Under Secretary for Air), Lieut.-General Sir Hastings Ismay, and Major-General G. N. Macready (Assistant Chief of the Imperial General Staff).

Colonel Knox, Secretary of the U.S. Navy, announced that from 16th September the United States fleet would protect all "lease and lend" cargoes on passage between America and "the waters adjacent to Iceland."

At night a force of 200 R.A.F. bombers attacked shipyards, factories and railways at Hamburg. Bremen, Cuxhaven, Wilhelmshaven and Le Havre were also bombed. Our fighters continued their attacks upon enemy aerodromes in occupied territory. We lost nine bombers.

16th September.—R.A.F. bombers sank an enemy patrol vessel off the Dutch coast in the morning. In the afternoon our fighters carried out offensive operations over the Channel and the French coast. In the course of the day we lost one bomber and two fighters; seven German fighters were destroyed.

Successful Russian counter-attacks were reported from Leningrad. Germany announced that "offensive actions were developing into an operation on a very big scale."

An enemy air raid on Cairo killed 39 people and injured 93.

Our troops resumed offensive operations in the Wolchefit area, North of Gondar, where the last of the Italian forces in Abyssinia had been invested since the capitulation of the main armies.

Germany terminated the "state of emergency" in Oslo (see 10th September).

The independence of Syria and the closing of the French mandate were proclaimed by the Free French authorities.

**The Shah of Iran, H.M. Riza Pahlevi, abdicated** "on account of failing health" and was succeeded by the Crown Prince Mohammed Riza Pahlevi.

The R.A.F. and the Fleet Air Arm made heavy night attacks upon Tripoli, Benghazi and Bardia (Libya).

At night the R.A.F. bombed Karlsruhe, other targets in western Germany, and the docks at Le Havre. None of our aircraft was lost.

Enemy bombing did no damage in England during the night, but one of the raiders was destroyed.

17th September.—The R.A.F. attacked the power plant at Mazingarbe (near Béthune) in the afternoon, our bombers being escorted by strong forces of fighters. Later our fighters carried out offensive operations. In the course of the day 12 German fighters were destroyed; we lost one bomber and 13 fighters, but four fighter pilots were saved.

An enemy supply ship off the Norwegian coast was attacked by one of our bombers.

The Admiralty announced that H.M. submarine P 32, overdue, must be considered lost.

The Russians made further progress in their westward drive towards Smolensk and delivered a successful counter-thrust outside Odessa. Germany reported the continued success of operations East of the Dnieper and of the assaults upon Leningrad; the German air force was said to have inflicted heavy losses upon Russian warships and transports on Lake Ladoga, off Oesel island, in the White Sea and in the waters of the Crimea.

Russia issued a categorical denial of a German claim to the capture of Briansk: in this sector the German forces under General Guderian had suffered a decisive defeat. The German report of a tremendous victory South of Lake Ilmen (see 15th September) was also denied.

The R.A.F. made a daylight raid upon munition factories at Licata (Sicily).

In Abyssinia the R.A.F. attacked enemy positions to the North-East of Azozo.

Enemy aircraft dropped a number of bombs on Alexandria at night.

The R.A.F. bombed Karlsruhe at night. The docks at St. Nazaire were attacked also. We lost one aircraft.

18th September.—In the morning R.A.F. bombers attacked a convoy off the Belgian coast, damaging a supply ship and sinking two anti-aircraft vessels. Two motor craft were attacked off the Dutch coast in the afternoon and one of them damaged. Another formation of our bombers attacked a power station near Rouen and our fighter forces carried out operations over the Channel and northern France. Late in the afternoon four R.A.F. fighters attacked four minesweepers off the Belgian coast: two of the vessels were sunk, one set on fire and the other badly damaged. The total loss to the enemy was seventeen aircraft; we lost two bombers and nine fighters, but two fighter-pilots were saved.

The Russians were engaged in heavy fighting round Kiev, inflicting considerable losses on the enemy. In one sector, however, the Germans penetrated to the outskirts of the city.

Germany announced that the concentric operations of General Field Marshal von Rundstedt and General Field Marshal von Bock had led to "a vast outflanking battle." Following the battle of Gomel an advance against the upper and lower Desna had continued towards the South and linked up with the attacks made northward by the German forces which had crossed the Dnieper on both sides of Kremenchug. "The ring has thus been closed round four Soviet armies. Their annihilation is now in progress."

Submarines of the Mediterranean fleet attacked a fast and heavily escorted Italian convoy carrying reinforcements to Libya. The convoy consisted of three liners each of about 24,000 tons; two were sunk and the third damaged.

In Iran Russian troops arrived in the suburbs of Teheran.

The R.A.F. bombed shipping in the harbours of Tripoli and Benghazi (Libya) at night. The Fleet Air Arm attacked the landing ground at Gambut and the harbour of Bardia.

Aircraft of the Fleet Air Arm made a night attack upon a convoy of two merchant vessels, two tankers and five escort vessels in the central Mediterranean.

At night the R.A.F. bombed the docks at Le Havre. None of our aircraft was lost.

19th September.—An R.A.F. bomber made a successful attack upon a supply ship in the Bay of Biscay. Our fighters carried out offensive operations over the Channel and the occupied territories, attacking supply trains, enemy troops and a patrol ship with cannon and machine-gun fire. Two German fighters were destroyed; one of our fighters was lost.

The Russians reported " particularly serious fighting near Kiev." German aircraft made a heavy attack upon Leningrad. **Germany announced the fall of Kiev** and an advance north-eastward from the Dnieper near Kremenchug which had reached Poltava.

A Dutch submarine was reported to have sunk a large sailing vessel by gun fire and an Italian supply ship of 6,000 tons by torpedo, in the Mediterranean.

At dawn R.A.F. bombers made another attack upon Tripoli (Libya). South African aircraft bombed dumps at Bardia and Gambut and attacked enemy motor transport. The Suez Canal zone was raided by enemy aircraft.

**In Iran British troops occupied** the inner suburbs of **Teheran** and the Skoda machine-gun factory East of the city.

The U.S. Government-owned ship " Pink Star " was sunk on passage from the United States to Iceland.

At night the R.A.F. bombed docks, warehouses and railway yards at Stettin. Two of our aircraft were lost in the operations. Objectives near Nantes were attacked without loss.

20th September.—During widespread daylight operations the R.A.F. attacked two enemy convoys off the Dutch coast, severely damaging eight ships and hitting an escort vessel ; bombed the railway junction at Hazebrouck, the docks at Cherbourg, and the railway centre at Abbeville ; attacked objectives at Emden ; and bombed a fish-oil factory at Floro on the coast of Norway. Our fighters shot down sixteen enemy fighters for the loss of seven. We lost three bombers, but the crew of one was saved.

The Russians reported that fierce fighting at Kiev continued. At the approaches to Odessa German and Rumanian troops which stormed one sector of the defences had been turned out by counter-attack.

The Germans announced that their forces which had driven through Kiev from the West had linked up with those attacking over the Desna river from the North ; the encircled Russians had sustained very heavy losses. German forces which had crossed the Lower Dnieper near Borislav were said to have reached the Sea of Azov. The capture of the islands of Oesel and Moon (entrance to the Gulf of Riga) was also claimed.

A " state of emergency " was declared in Bulgaria.

As a reprisal for attacks upon German soldiers the Germans executed twelve hostages in Paris.

R.A.F. heavy bombers attacked Benghazi (Libya) at night.

At night unsuccessful attacks upon our North Sea convoys were made by E-boats, two of which were severely damaged.

At night the R.A.F. bombed objectives in Frankfurt, Berlin and at other places in North-West Germany. The docks at Ostend were attacked also. Four of our aircraft were lost.

In the Ukraine the Germans appeared to make great progress during the week and the situation East of Kiev became grave. In this region heavy fighting still continued. Moreover, if the German advance from Kremenchug had really reached Poltava, Kharkov itself was threatened; and this movement, combined with the enemy's southward thrust which was said to have reached the Sea of Azov, constituted a serious menace to the great industrial area in the Donetz basin. Odessa still held out. In the North the battles before Leningrad seemed to have assumed the character of siege warfare.

The actual taking over (on 16th September) by the U.S. fleet of the protection of "lease and lend" cargoes from the American seaboard to Iceland was an event of major importance. It lightened at once the responsibilities of the Royal Navy, and was the first sign of active participation in the war by the U.S.A.

In his report to Congress President Roosevelt had revealed that "lease and lend" assistance was being given to the following nations: Great Britain, China, Poland, Greece, Yugo-Slavia, Norway, Belgium, the Netherlands (including the Dutch East Indies), Brazil and the Dominican Republic. The large war supplies sent to Russia were not "lease and lend" help.

The publication of the names of twelve British warships which were being repaired, provisioned, etc., at U.S. ports, also named, seemed to be a rather startling departure from the usual policy of secrecy.

Much difficulty had been experienced by the Iranian Government in closing the enemy legations and rounding up enemy nationals. The abdication of the Shah and the accession of the Crown Prince was accomplished without much civil disorder, the presence of British and Russian troops continuing to have a salutary effect. On the whole the situation appeared to be fairly well in hand, although much remained to be done before enemy influences were completely eradicated.

The severity of the measures of repression taken by the Germans in Paris (see 20th September) showed how serious was the unrest in occupied France. Conditions in Norway were also grave, and a regular guerilla warfare continued in Serbia.

The expansion of the Indian Army by the conversion of Territorial Force units into Regular units began on 15th September. Over 75 per cent. of the Territorial personnel volunteered for full service.

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21st September.—R.A.F. bombers attacked the power station at Gosnay (near Béthune) in the afternoon and also railway objectives at Lille. Our fighter escorts had many combats with German fighters, 24 of which were destroyed. Thirteen of our fighters were lost but two pilots were saved; all our bombers returned.

**The Russians announced that Kiev was evacuated on this day.**

Germany claimed that the large Russian forces surrounded East of Kiev had been dispersed into several groups which sustained very heavy casualties in their efforts to break out.

A Hungarian communiqué spoke of the pursuit "East of the Dnieper" and suggested that the Russians were now organizing a defensive line behind the river Donetz.

In a broadcast appeal at night Marshal Pétain appealed to Parisians to cease resistance against the German occupation.

22nd September.—An R.A.F. bomber hit a large enemy supply ship off the coast of Norway.

Germany announced that the Russian forces surrounded East of Kiev were steadily disintegrating and that prisoners already amounted to "about 380,000." It was estimated that fifty Soviet divisions had been destroyed. German air attacks were said to have been successful against Russian warships off Odessa and Kronstadt, Leningrad and against railway communications around Briansk and Kharkov and in the Crimea.

The recent destruction was announced of two large Italian schooners, bombed by the R.A.F. off the coast of Tripoli.

R.A.F. heavy bombers attacked Benghazi and Tripoli (Libya) at night.

At night the R.A.F. bombed the docks at Boulogne. Unfavourable weather prevented more extensive operations.

23rd September.—Before Odessa the Rumanians sustained a fresh reverse. The Germans claimed that the Russian forces surrounded East of Kiev had been reduced to two "pockets" which would be eliminated in the course of a few days; the German air force was said to have achieved fresh successes against Russian warships

off Kronstadt, in the coastal area of the White Sea, and in bombing objectives at Leningrad and Moscow by night.

In the central Mediterranean three enemy merchant ships were badly damaged by the attacks of the R.A.F. and the Fleet Air Arm.

Enemy positions near Gondar (Abyssinia) were bombed by our aircraft.

R.A.F. heavy bombers again bombed Tripoli and Benghazi (Libya) at night. The Fleet Air Arm attacked buildings near Bardia.

24th September.—Although the weather was very unfavourable, the R.A.F. searched for enemy shipping: a large supply vessel was bombed off the coast of Norway and some of our fighters attacked a mine-sweeper.

Germany reported that desperate attempts to break out made by the last Russian forces encircled East of Kiev had been defeated. At night German aircraft raided Moscow and the munition factories at Tula.

A wing of the R.A.F. was reported to have been in action on the Russian front; seven German fighters had been destroyed for the loss of one.

In the Ionian Sea an Italian seaplane was shot down by our aircraft.

The Admiralty announced further successes of our submarines in the Mediterranean: a mine-layer and a supply ship successfully attacked by torpedo; a large schooner engaged by gun-fire and probably sunk; a supply ship sunk by torpedo and a transport set on fire.

In Libya our aircraft made a successful daylight attack upon traffic using the Misurata–Sirte road. South African bombers raided a large dump near Bardia. At night the R.A.F. raided Tripoli and Benghazi, the Fleet Air Arm co-operating at Tripoli.

The second meeting of the Inter-Allied Council was held in London, Russia being represented for the first time. Resolutions were passed expressing the adherence of all to the "Atlantic Charter" and to the principles formulated for the reconstruction of Europe after the War.

Heavy bombers of the R.A.F. made a night raid on the harbour of Palermo.

25th September.—Germany announced that the annihilation of the Russian forces surrounded East of Kiev was almost accomplished; prisoners now amounted to over 574,000.

At night the R.A.F. bombed Tripoli and Benghazi (Libya), the Fleet Air Arm co-operating at Tripoli.

26th September.—R.A.F. fighters attacked four enemy mine-sweepers and two anti-aircraft ships off Dunkirk; both anti-aircraft ships were damaged and two of the mine-sweepers were set on fire. Off Cherbourg a small enemy patrol vessel was sunk. We lost no aircraft.

The Admiralty announced the loss of H.M. trawlers "Skudd III" and "Strathborve."

Germany announced the conclusion of the battle East of Kiev where five Soviet armies had been annihilated with the loss of 665,000 prisoners and much war material. Moscow and the munition works at Tula were bombed by German aircraft.

On the Russian front R.A.F. fighters were reported to have destroyed two German fighters, without loss to themselves, whilst escorting Russian bombers.

Successful daylight attacks were carried out by our aircraft against the enemy land communications in Libya. An enemy convoy off Tripoli was bombed, one vessel being sunk and others damaged. The South African Air Force bombed a dump and camp at Gambut.

The Italian forces at Wolchefit (Abyssinia), numbering about 3,000, surrendered.

Russia decided to recognize General de Gaulle as leader of the Free French, and the Free French forces as an Ally.

R.A.F. bombers made a night attack upon the harbour of Palermo and railway tracks and warehouses at Agrigento (Sicily).

In spite of unfavourable weather the R.A.F. bombed objectives at Cologne and elsewhere in western Germany during the night. The docks at Calais and Dunkirk were attacked also. We lost one aircraft.

27th September.—R.A.F. bombers escorted by strong forces of fighters bombed the railway centre of Amiens and a railway junction near La Bassée in the afternoon. Twenty-one German fighters were destroyed; twelve of our fighters were lost but the pilots of three were saved. None of our bombers was lost, but another fighter was missing from an offensive patrol.

Germany announced that heavy air attacks had been made upon railways in the vicinity of Moscow and Kharkov.

Whilst the British fleet was covering the passage of an important convoy through the central Mediterranean, heavy enemy air attacks were made upon the ships. Five enemy aircraft were shot down by our naval fighters and seven by gun-fire of the fleet. H.M. battleship "Nelson" was hit by a torpedo, but the only effect was slightly to reduce her speed; we lost three fighter aircraft, but the crews of two were saved. One merchant vessel was damaged and had to be sunk by our forces, towing having proved impracticable.

In daylight the R.A.F. carried out successful attacks upon enemy air bases and other objectives at Elmas (Sardinia) and Borizzo, Marsala and Porto Empedocle (Sicily). In the Gulf of Taranto a merchant vessel was bombed and sunk.

Daylight operations of the R.A.F. in Libya included an attack upon Bardia harbour and town, and upon motor transport and camps elsewhere. At night successful minor operations were undertaken by our troops at Tobruk.

The sinking was reported by an enemy submarine of a U.S. owned ship flying the flag of Panama about 400 miles N.W. of Cape Finisterre.

At night bombers of the R.A.F. attacked the harbour installations and works at Rhodes (Dodecanese islands).

Towards the end of the week German reports spoke of operations against the Crimea, but these had made little impression. Odessa was still holding out, the defenders having gained some local successes. In the Ukraine the extravagant German claims regarding the annihilation of five Soviet armies East of Kiev undoubtedly represented a much smaller achievement; but the threat to Kharkov and the Donetz basin remained. South-East of Smolensk (Yelnya) the Russian counter-offensive still made headway; Leningrad continued to throw back the German assaults; and it was not clear if all or even part of the island of Oesel (Gulf of Riga) was in German hands. In Karelia the Finns claimed the capture of Kandalaksha which, if true, meant that the Leningrad–Murmansk railway had been cut.

Finland had been warned by Great Britain, probably too late, that if she invaded purely Russian territory she would be regarded as an open enemy. In any case Finland's future part, for what it would be worth, in the war against Russia seemed bound to be determined by Germany.

The Iranian Government had decided to withdraw its diplomatic representatives from Germany, Italy and Rumania, but many German agents were still at large in Iran where the situation was not yet entirely satisfactory. However, progress had been made with the organization of communications between the Persian Gulf and the Caspian Sea.

Unrest in the German-occupied countries was on the increase. In the Czech state numerous cases of sabotage were reported; there were disorders in Croatia; and the Serbs were waging guerrilla warfare. In occupied France the shooting of "hostages" continued.

On 23rd September General de Gaulle announced changes in the Free French organization which practically amounted to a provisional government; two days later the name of the members of the new Free French National Council were published.

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28th September.—R.A.F. fighters operating over occupied France made attacks with cannon-fire on a supply train and on two petrol wagons which were set alight. Aircraft on the ground, troops, and a machine-gun post were also attacked.

Germany claimed that in the Ukraine, North-East of Dniepropetrovsk, three Soviet divisions had been outflanked by German and Rumanian troops and destroyed; prisoners amounted to 13,000. German aircraft were said to have bombed the railways in the areas of Moscow and the Donetz basin and, at night, the cities of Moscow and Leningrad.

In the early morning light naval forces bombarded the Italian E-boat base on the island of Pantellaria. The enemy was taken by surprise.

Our Mediterranean convoy which had been attacked on 27th September (*q.v.*) was shadowed by an enemy aircraft. Our naval aircraft intercepted and destroyed it.

In Libya the R.A.F., South African Air Force and Fleet Air Arm delivered heavy attacks upon the harbour and shipping at Bardia both by day and night.

A state of emergency in six districts of the Protectorate of Bohemia and Moravia was proclaimed by the German authorities consequent upon serious unrest among the Czechs.

At Damascus General Catroux, commanding the local Free French forces, formally proclaimed the independence of the Syrian Republic.

R.A.F. bombers made a very successful night raid upon Palermo (Sicily), much destruction being caused. Comiso aerodrome was also attacked.

According to an Italian official report the R.A.F. made night attacks upon the island of Rhodes, and Trapani, Marsala, and Castel Vetrano in Sicily.

At night the R.A.F. not only bombed Frankfurt and other objectives in western Germany, but also extended their operations to Italy where targets at Milan, Turin, Genoa, Savona and other places were attacked. The oil depôts and refineries at St. Nazaire were bombed also. We lost seven bombers.

29th September.—R.A.F. fighters attacked shipping off the Belgian coast, setting one patrol vessel on fire and damaging others; a sea-going barge was sunk. Other of our fighters attacked a convoy of lorries in northern France and set five of them on fire. We lost one aircraft but the pilot was saved.

Germany claimed that in the course of operations "East of the Dnieper" Italian troops had "exterminated strong enemy forces," taking several thousand prisoners. A success was said to have been obtained on the 28th and 29th in "the northern sector" where 210 enemy fortified posts had been stormed. The German air force continued to attack the railways round Kharkov, and Leningrad, also bombing the Murmansk railway.

The Three-Power Conference opened in Moscow.

The R.A.F. made a daylight attack upon Palermo (Sicily).

Bardia (Libya) was again attacked by day and night, the R.A.F. as before having the co-operation of the South African Air Force and the Fleet Air Arm. The R.A.F. also made heavy and successful night attacks upon Tripoli and Benghazi.

Our fighters carried out a dusk attack upon Lannion, damage being done to aircraft on the ground and to gun positions.

The aerodromes at Gerbini and Comiso (Sicily) were bombed by the R.A.F. at night.

At night very strong formations of the R.A.F. bombed Stettin and Hamburg. Subsidiary attacks were made upon the docks at Cherbourg and Le Havre. Eight of our bombers were lost; one enemy fighter was shot down. Two of our fighters were lost during offensive patrols over enemy aerodromes.

30th September.—R.A.F. fighters attacked two armed merchant vessels off Cherbourg. A Beaufort aircraft hit with a torpedo a ship

discovered off the Norwegian coast. One of our fighters was lost in the course of the day's offensive operations.

Germany announced further successes East of the Dnieper including operations of armoured forces East and North-East of Dniepropetrovsk. At night German aircraft attacked Moscow.

During the day the R.A.F. carried out successful attacks against the enemy's communications in Libya. At night Tripoli and Benghazi were bombed and the attacks upon communications continued.

At night the R.A.F. again attacked Stettin and Hamburg. The docks at Cherbourg and St. Nazaire and numerous objectives at Nantes were bombed also; and an attack upon a convoy off the Dutch coast damaged two enemy ships. We lost one bomber. Our fighter aircraft attacked aerodromes in enemy-occupied territory.

A sharp attack was made by enemy aircraft upon the North-East coast of England during the night, causing considerable damage and a number of casualties. One German bomber was destroyed.

1st October.—During fighter operations and patrols over the Channel the R.A.F. lost two aircraft. Two German fighters were destroyed.

The Germans gave more details of the Italian successes said to have been gained East of the Dnieper during the last three days of September. Finnish forces were reported to have captured Petrozavodsk.

In Moscow the Three-Power Conference came to an end.

The War Office appointment of Engineer-in-Chief, to be held by Major-General C. J. S. King, was announced.

Heavy bombers of the R.A.F. raided Benghazi (Libya) at night. Enemy transport at various points was attacked also.

At night, in bad weather, the R.A.F. bombed Stuttgart and other points in western and south-western Germany. The docks at Calais, Boulogne and Ostend and shipping off the Frisian islands were also attacked. We lost one bomber; one enemy night fighter was destroyed and another damaged.

2nd October.—In offensive operations over the Channel and the coasts of the occupied territories the R.A.F. set fire to a barge off Dunkirk; bombed two motor-vessels in Norwegian waters; and shot down seven German fighters. We lost three fighters.

The Russians reported a local success in the Ukraine on this day. Germany merely announced successful progress in all operations. German bombers attacked Moscow and the Kharkov region.

The reorganization of the British forces in the Middle East was announced : the Northern Army (Syria and Palestine) to be under the command of Sir Maitland Wilson ; for the Western Army (Egypt and Western Desert), the name of the commander was not disclosed.

Heavy bombers of the R.A.F. again raided Benghazi (Libya) at night and attacked enemy transport concentrations.

At night the R.A.F. bombed the docks at Brest and the docks and shipyards at St. Nazaire. Our fighters attacked aerodromes in enemy-occupied territory. We lost no aircraft.

German aircraft were active over South-East and North-East England and South-East Scotland during the night. Some damage and a number of casualties were caused ; three of the raiders were destroyed.

3rd October.—In the morning the R.A.F. attacked off Gravelines a supply ship escorted by seven anti-aircraft vessels : of the latter, one was sunk, three set on fire and the remainder damaged ; the supply ship was set on fire. In the afternoon our bombers, escorted by fighters, attacked the docks at Ostend ; one German fighter was destroyed by the escort. We lost three fighters during the day.

Just before noon German guns on the French coast shelled shipping in the Channel without effect.

On the Russian front heavy fighting continued. At night German aircraft bombed Leningrad and Moscow.

The R.A.F. made a successful daylight raid upon a railway junction, power station and munition factory at Marina di Catanzaro (South coast of Italy).

Our troops at Tobruk (Libya) carried out successful minor operations. At night Bardia was bombed by the R.A.F. and S.A.A.F.

Hitler made a speech in Berlin at the opening of the " Winter Help " campaign.

The Australian Government resigned and Mr. Curtin, leader fo the Labour opposition, agreed to form a Cabinet.

At dusk R.A.F. fighters attacked with cannon and machine-gun fire an enemy aerodrome in northern France. We lost one aircraft.

The night offensive of the R.A.F. included attacks upon the docks at Dunkirk, Rotterdam, Antwerp and Brest; also upon enemy aerodromes at Aalborg in Denmark.

A German bomber was destroyed off the East coast of England during the night.

4th October.—The Admiralty announced that one of H.M. ships had sunk a German supply ship in the Atlantic.

The Russians gained local successes before Odessa and in the region of Poltava; also in the Smolensk sector. Details were announced of the successes of the Russian guerrilla forces.

Germany claimed successes on this day at the Perekop isthmus (Crimea) and "South of the Dnieper mouth." Abruka island, South of Oesel, was said to have been captured. At night German aircraft raided Leningrad, Moscow and factories South-East of Kharkov.

Bardia harbour (Libya) was bombed during daylight by the R.A.F. and S.A.A.F. At night our aircraft attacked Benghazi.

The Fleet Air Arm made a night attack upon various objectives at Marsala, Trapani and Licata (Sicily).

In his speech on 3rd October Hitler announced that a new and important offensive had been launched against the Russians; there was no further news of this operation. Heavy fighting was proceeding at the Perekop isthmus and there were reports of a Russian movement westward along the shores of the Sea of Azov to relieve the situation in the Crimea; the Russians were delivering counter-attacks with some success in the Ukraine, and Marshal Timoshenko still appeared to be making headway in the Smolensk region. Odessa and Leningrad had successfully maintained their resistance. North-East of Leningrad the Finns were reported to have been checked between Lakes Onega and Ladoga. It was not yet clear if the Leningrad–Murmansk railway had been cut by the enemy who had, however, sustained a decided reverse in the region of Murmansk.

Hitler's speech obviously aimed at heartening the German people and convincing the people of the occupied territories that German power was invincible. Russia, said the Führer, was already beaten (everything had gone "according to plan") and German war production was more than sufficient for the needs of the armies. The Russian losses were

2,500,000 men captured, and 22,000 guns, 18,000 tanks and 14,500 aircraft captured or destroyed.

These figures brought a prompt denial from the Soviet Information Bureau which published the following estimate of Russian and German losses :—

| | *Men* | *Tanks* | *Guns* | *Aircraft* |
|---|---|---|---|---|
| Russian ... ... | 1,128,000 | 7,000 | 8,900 | 5,316 |
| German ... ... | 3,000,000 | 11,000 | 13,000 | 9,000 |

The numbers, at least, did something to emphasize the magnitude of the German effort and the obstinate and skilful character of the Russian resistance.

The Three-Power Conference held in Moscow had concluded its deliberations with praiseworthy celerity. Meanwhile it was satisfactory to learn that a large convoy laden with supplies had reached Archangel and returned, and that jute from India was already arriving in Russia.

The methods of terrorism by which Germany was seeking to crush all resistance in Czecho-Slovakia, Poland, Yugo-Slavia and the other occupied countries showed how inspiring had been the effect of the active Russian defence against aggression : swift and brutal methods of repression might enable Germany to release at an early date more troops in occupation of the conquered countries to reinforce the main theatres of war.

At the reassembly of Parliament on 30th September, Mr. Winston Churchill had reviewed the progress of the war. Our shipping losses for the quarter ended on the above date were less than a third of those suffered in the previous quarter : our food situation was satisfactory : there was every ground for sober confidence : we must however make sacrifices to give Russia what she needed to maintain a successful resistence, for the German effort against her would not necessarily relax during the Winter : in the Spring we must be prepared to resist invasion and to see very heavy fighting in the East. Germany, said the Prime Minister, still held the initiative but suffered from " shortage in the air." The enemy had certainly lost heavily in aircraft during the Russian struggle, but the " shortage " might be taken to refer largely to skilled pilots and trained crews.

Our convoy which had been attacked from the air on 27th and 28th September (*q.v.*) reached its destination without further loss. During the operations a report was received that the Italian fleet was at sea ; if so, it avoided all chance of being brought to battle.

5th October.—Germany announced that Russian attempts to land on the coast West of Leningrad had been defeated with heavy loss; also that Russian counter-attacks at other points round the city had been repulsed. At night German aircraft bombed harbours in the Sea of Azov, a railway junction West of Moscow, and Leningrad.

In the early hours of the morning the Fleet Air Arm attacked in the Mediterranean a convoy of six merchant vessels escorted by five destroyers. Two of the merchant ships were sunk and a third damaged.

Major-General V. V. Pope, Brigadier H. E. Russell and Colonel E. S. Unwin were killed in a flying accident in the Near East.

Further reinforcements of Australian and New Zealand troops, with naval personnel, arrived at Singapore.

In the Libya–Egypt frontier area a small British patrol returning at night from a raid was overwhelmed by a larger enemy force. Heavy bombers of the R.A.F. made a successful night attack upon the shipping in Tripoli harbour. Benghazi, Binina aerodrome and Barce landing ground were also attacked by our aircraft.

The Fleet Air Arm attacked the Sicilian aerodromes at Marsala, Catania and Gerbini at night.

6th October.—R.A.F. fighters attacked three armed trawlers off Ostend, sinking one and severely damaging the others. We lost one fighter.

**The Germans** announced a decisive victory in the area North of the Sea of Azov; another Russian attempt to land troops on the coast West of Leningrad was said to have been defeated. It was **claimed that the large scale operations begun on 2nd October had already resulted in the encirclement of "several Soviet armies"** in the Vyazma area, between Smolensk and Moscow. At night German aircraft bombed Leningrad, Moscow and (for the first time) Rostov.

The R.A.F. Wing with the Russian forces repulsed an attack upon an aerodrome, shooting down three German aircraft and damaging many others. We suffered no loss.

A successful daylight raid was carried out by the R.A.F. on Comiso and Catania (Sicily).

Workshops in Bardia (Libya) and ammunition dumps near the town were successfully attacked by the R.A.F. in daylight.

At night our heavy bombers attacked Tripoli harbour and dumps at Bardia. South African and Australian aircraft raided objectives at Gambut.

At night R.A.F. bombers attacked with great success oil installations, harbour buildings and shipping at Piræus (port of Athens).

The Fleet Air Arm bombed Gerbini and Marsala (Sicily) at night.

7th October.—**On the Russian front fighting was particularly severe in the regions of Vyazma and Briansk** (West and South-West of Moscow).

The Germans published further details of a victory in the eastern Ukraine, where it was said German, Hungarian, Italian and Slovak troops had advanced to the Sea of Azov and cut off the retreat of the Soviet Ninth Army, which had already been defeated at Melitopol; six or seven Russian divisions were "facing annihilation."

The Admiralty announced further successes of our submarines against enemy shipping in the Mediterranean: an Italian torpedo boat, a guard vessel, a supply ship and a sailing vessel all sunk; two tankers, two transports and three supply ships torpedoed and badly damaged.

Negotiations with Germany for the mutual repatriation of sick and wounded prisoners were finally broken off on this day after having lasted about a month. It was found impossible to rely on German good faith.

At night two German aircraft which attempted to raid the Suez Canal area were both brought down.

Naval aircraft carried out a dive-bombing attack on El Gazala (Libya) landing grounds at night. R.A.F. bombers attacked Tripoli and also bombed a large merchant vessel at sea West of the harbour. Patrol activity took place at Tobruk, German tanks being engaged.

8th October.—At dawn naval aircraft attacked enemy shipping and communications in the Vest Fjord area of Norway. A supply ship was set on fire and pylons of the electric power system on Grond island were destroyed. In further attacks, three supply ships—two of them in convoy—were bombed and hit.

The Admiralty announced that H.M. auxiliary vessel "Corfield" had been sunk.

On the Russian front heavy fighting continued in the regions of Vyazma and Briansk. South-East of Briansk **the Russians withdrew from Orel.** At Melitopol, in the eastern Ukraine near the Sea of Azov, another fierce engagement was in progress.

**Germany announced that** the deep breach in the centre of the Eastern Front had led to another outflanking battle; **three Soviet armies were faced with annihilation in the Briansk region;** Marshal Timoshenko had sacrified the last army capable of giving battle on the Soviet front. The repulse of Russian counter-attacks at Leningrad was also claimed. German air forces bombed the Russian communications, armament works South-East of Kharkov and (at night) Leningrad.

In Libya our aircraft made successful daylight attacks upon enemy motor transport between Misurata and Sirte. Patrols of both sides were active at Tobruk at night, the enemy again employing tanks.

During the night, in the Mediterranean, naval aircraft sank one large enemy merchant vessel, and an R.A.F. bomber severely damaged another.

Heavy bombers of the R.A.F. made a successful night attack on Comiso (Sicily).

9th October.—R.A.F. fighters shot down a German fighter near Calais; destroyed a seaplane at Ostend and attacked shipping in the harbour where two vessels and an anti-aircraft ship were damaged; and set on fire a small tanker off Cherbourg. An enemy bomber was shot down off the South coast of England in the afternoon.

The Admiralty announced that after a spirited engagement a German submarine had surrendered to H.M. armed trawler "Lady Shirley."

In Russia heavy fighting continued in the regions of Vyazma and Briansk, and also round Melitopol near the Sea of Azov.

The Germans claimed progress in all the above localities, stating that a "breach in the centre of the front, 300 miles wide" had been extended eastward. Orel, it was said, had been in German hands since October 3rd. At Leningrad fresh Russian counter-attacks were reported to have been repulsed and Russian casualties in the fighting for the islands of Oesel and Moon were given. The German air force was active over a wide area of the Russian communications and also bombed Leningrad.

A new trade agreement between Germany and Turkey was signed at Ankara.

General Nuri Said formed a new Cabinet in Iraq.

In a message to Congress President Roosevelt asked for authority to arm U.S. merchant ships and urged the repeal of that section of the Neutrality Act which forbade U.S. ships to enter belligerent areas.

At night more patrol encounters took place at Tobruk (Libya), including a tank engagement. Benghazi, Berca and Binina were bombed by our aircraft.

German batteries on the French coast shelled the Dover area at night.

In very bad weather the R.A.F. bombed shipping and other objectives at Aalesund (West coast of Norway) at night.

10th October.—Shipping off the coast of Holland was attacked by R.A.F. bombers, one supply vessel being hit.

**The Russians were still hard pressed** in the regions of Vyazma; Briansk, where German progress was admitted; and round Melitopol (Sea of Azov).

Germany stated that the "annihilation of the enemy near the Sea of Azov was nearly completed," and that the Russian forces surrounded near Briansk and Vyazma were meeting with the same fate. Russian counter-attacks at Leningrad were said to have been defeated. At night the German air force bombed Leningrad, Moscow and the Russian railways.

Our troops at Tobruk (Libya) engaged in successful patrol encounters at night when German tanks were again in action. The R.A.F. bombed Bardia and Derna.

The R.A.F. bombed the aerodrome at Comiso (Sicily) at night.

During the night the R.A.F. and Fleet Air Arm made repeated attacks upon an Italian convoy, escorted by five destroyers and aircraft, in the central Mediterranean. Three ships were torpedoed and others damaged.

Powerful forces of the R.A.F. renewed the offensive against Germany at night, the weather having improved. Cologne and a number of targets in the Ruhr were heavily bombed; attacks were made also upon Rotterdam, Ostend, Dunkirk and Bordeaux as well as upon aerodromes in enemy-occupied territory. We lost ten aircraft.

11th October.—R.A.F. fighters made low level attacks with cannon and machine-guns upon German troops and transport and other targets in northern France.

In the fighting round Vyazma and Briansk the Russians lost ground although inflicting heavy losses on an enemy superior in numbers.

**Germany announced that the battle near the Sea of Azov had ended with the utter defeat of the Soviet Ninth and Eighteenth Armies.** A special announcement proclaimed that German forces were attacking towards the East from the Sea of Azov to the Valdai hills. "The battlefields of Briansk and Vyazma are already far behind the front."

At night the German air attacks upon the Russian communications were resumed and Leningrad was again bombed.

In the Mediterranean the R.A.F. made a daylight attack upon shipping in the Gulf of Sirte (Libyan coast) setting two vessels on fire.

At Tobruk (Libya) our forces were successful at night in several patrol encounters, Polish troops taking part. The R.A.F. bombed Benghazi, Tripoli, Bardia and the aerodrome at El Gazala.

Naval aircraft made a night attack upon objectives at Cape Passero (Sicily) and bombed an enemy merchant vessel in the central Mediterranean.

The R.A.F. night attacks upon Germany included the bombing of Emden and other objectives in the North-West. Shipping off the Norwegian coast and the Frisian islands was attacked, also a fish oil factory in Norway. We lost one aircraft. Our fighters attacked aerodromes in France.

Enemy air activity during the night was on a small scale. Bombs dropped in South-West England and in South Wales caused little damage and few casualties. Two of the raiders were destroyed: one by collision with an R.A.F. aircraft which was itself destroyed.

Throughout an anxious week the German offensive, which had begun on 2nd October, developed over a wide area of Russian territory and the situation became very grave. The chief threat was towards Moscow from the directions of Vyazma, Briansk and Orel; and considerable progress had been made, at the price of heavy losses, by the numerically superior enemy. For the moment the advance on Kharkov from Poltava seemed to be suspended; but the undoubted enemy successes North of the Sea of Azov had placed in jeopardy the great industrial area of the Donetz basin and also the city of Rostov. The defenders of Leningrad appeared to have wrested the initiative from their adversaries.

Public opinion, both in Russia and in Great Britain, was becoming exercised as to what greater effort the forces of Great Britain could make to relieve the Axis pressure upon the sorely-tried Russian armies. The Royal Navy, however, was already striking at the German sea communications to the Arctic and escorting large convoys to Russian ports: the Royal Air Force, hampered by fog for over a week, had not been able to maintain without a break the strategical bombing of Germany. First and foremost our duty was to supply to our Ally as much as possible of the arms, munitions and equipment of which she stood in need.

The trade agreement which Germany had concluded with Turkey was a long-term arrangement which future events might easily invalidate. The precious chrome (used in aeroplane manufacture) which Germany desired was to be delivered in 1943 and 1944 when the present British agreement with Turkey had expired; and the transaction was dependent upon the prior arrival in Turkey of German machinery and other supplies up to a certain value.

The disorder in the German-dominated countries of Europe was by no means quelled, in spite of the ruthless methods employed to do so. The execution of Frenchmen, Czechs and Yugo-Slavs continued; Greeks in western Thrace and Macedonia had been massacred by Bulgarian troops; a list of German atrocities in Crete was made public. From Austria came tales of unrest, whilst active public resentment grew in Belgium whence a large part of the German garrison had been withdrawn for reinforcement of the Eastern front.

A contingent of the A.T.S. had been incorporated in a "mixed" anti-aircraft battery, taking over much of the instrument work. Thus women were added in the combatant forces of the British Army.

During the week the war-risk insurance rates on cargoes crossing the Atlantic were reduced by the United States underwriters.

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12th October.—The Dover area was bombarded in the afternoon by German guns on the French coast.

R.A.F. bombers with strong fighter escort attacked the docks at Boulogne. An enemy convoy off the Dutch coast was bombed, and in the afternoon our fighters destroyed three German fighters over the Channel. Our total loss for the day was two bombers.

**The Russians evacuated Briansk** after three days of particularly stubborn fighting. The engagements in the region of Vyazma and in all the central sector continued, the enemy making some headway at the cost of heavy casualties. It was reported that the evacuation of women and children from Moscow had begun.

Germany announced that further losses had been inflicted on the Russians in the Sea of Azov region: a Croat regiment had been in action East of the Dnieper: prisoners in the Briansk–Vyazma battle now numbered over 350,000: Russian counter attacks were repulsed at Leningrad: Moscow was bombed at night.

A Hungarian communiqué claimed that a breach had been made in the Donetz defence line, in spite of the handicap of bad weather.

Our main Mediterranean battle fleet was reported to have returned to its base after cruising through the enemy's chief lines of communication with North Africa, constantly within range of Axis sea and air bases. No opposition whatever had been encountered.

During the day German tanks came into action at Tobruk (Libya) without much effect. Our troops had successful encounters in the frontier region. The R.A.F. destroyed four enemy aircraft in a series of combats and damaged many more; we lost four fighters. At night the R.A.F. and Fleet Air Arm bombed enemy positions on the frontier, El Gazala landing ground, and gun positions at Derna, whilst South African aircraft attacked Bardia. At Tobruk a Polish patrol was successfully engaged with the enemy.

The Netherlands Admiralty announced the loss by enemy action of H.N.M. minelayers "Van Meerlaut" and "Caroline"; also the loss of H.N.M. minelayer "Nautilus" sunk after a collision.

The U.S. naval authorities announced that a German wireless station discovered on the Greenland coast had been "disposed of."

Heavy bombers of the R.A.F. delivered a successful night attack upon oil installations in Piræus harbour.

At night more than 300 bombers of the R.A.F. made heavy attacks upon Germany. Objectives were Nuremberg, which suffered severely, and in the North and North-West, including Bremen. The docks at Boulogne, an aerodrome in Holland and shipping off the Dutch and Norwegian coasts were also bombed; our fighters attacked aerodromes in northern France. We lost eleven bombers.

Enemy aircraft dropped bombs in northern and eastern England during the night. Casualties and damage were slight; two of the raiders were destroyed.

13th October.—In the afternoon R.A.F. bombers escorted by fighters attacked the chemical works and power-station at Mazingarbe near Béthune. There were many combats and twenty German fighters were shot down: we lost one bomber and twelve fighters, but two fighter-pilots were saved.

Fierce fighting continued in the Briansk and Vyazma regions. Heavy losses were sustained by the enemy who suffered severely from Russian air attacks.

Germany announced that the annihilation of the Russian forces encircled in the Briansk area was proceeding steadily, despite the difficulties presented by the wooded country: Leningrad was subjected to air attacks at night.

In Libya our aircraft made a successful daylight attack upon enemy transport moving between Tripoli and Benghazi. Tripoli and Benghazi were attacked by R.A.F. heavy bombers at night.

Lieut.-General G. J. Berenschot, Commander-in-Chief Dutch East Indies, was killed in an air crash at Batavia.

Italian fighters approached Malta at night; one was shot down and others were damaged.

The Fleet Air Arm made a night attack upon Castel Vetrano aerodrome (Sicily) and destroyed a merchant ship proceeding in convoy in the central Mediterranean.

At night the R.A.F. bombed Düsseldorf, Cologne, and other objectives in western Germany. The docks at Boulogne and shipping off the Dutch and French coasts were attacked also. We lost five aircraft.

14th October.—Off the Norwegian coast bombers of the R.A.F. attacked and severely damaged three ships and hit another. Our fighters machine-gunned a goods train in northern France, attacked a patrol vessel, and shot down an enemy seaplane. We lost one aircraft in the course of the day's operations.

**The Russians were still heavily engaged in the Briansk and Vyazma regions and also round Kalinin,** North-West of Moscow. At night the enemy made decided progress West of Moscow where a sector of the defence was ruptured. Successful counter-attacks were made from Leningrad. In the South **the Russians evacuated Mariupol, on the coast of the Sea of Azov.**

Germany announced the "final annihilation" of the Russian forces surrounded in the Vyazma area, and the approaching

destruction of those encircled near Briansk. Prisoners in this "double battle" were said to amount to over 500,000.

The Admiralty announced that our submarines had sunk three more supply ships in the Mediterranean.

The Netherlands Admiralty reported that a Dutch submarine had sunk one supply ship in the Mediterranean.

In the early morning a British patrol at Tobruk attacked an Italian post, which surrendered.

At night the R.A.F., in bad weather, attacked objectives in southern Germany, also shipping off the Norwegian coast and the Frisian islands. We lost four aircraft.

15th October.—The R.A.F. bombed shipping off the Dutch coast and the docks and shipping at Le Havre. Our fighter escort destroyed five German fighters; we lost seven bombers and one fighter. In the afternoon the docks and shipping at Esbjerg were bombed, three of our aircraft being lost in the operation.

**Germany announced** that the Russians surrounded in the Briansk region were accounted for, and that large German forces were now set free for further operations; prisoners were said to amount to over 560,000; **fighting was now going on some 60 miles from Moscow;** the towns of Kaluga (100 miles S.W. of Moscow) and Kalinin (100 miles N.W. of Moscow) had been captured some days previously.

In Libya heavy bombers of the R.A.F. made night attacks upon the harbour at Benghazi and the aerodromes at Berca and Martuba, whilst naval aircraft bombed objectives outside Bardia.

At night the R.A.F., in bad weather, bombed objectives in western Germany, including Cologne. The docks at Boulogne were attacked also.

16th October.—During the day R.A.F. fighters carried out sweeps over Holland, northern France and the Channel. Among the targets attacked were an anti-aircraft ship, a ship in dock, a goods train, a motor-boat and a petrol store. One enemy aircraft was shot down; we lost one fighter. Our bombers attacked shipping off the Norwegian coast.

Germany announced that on this day a Rumanian army, supported by detachments of the German Army and Air Force, took the town and harbour of Odessa. German aircraft were said to have wrought great havoc among the transports carrying evacuated Russian troops. It was claimed that German, Italian,

Hungarian and Slovak troops were participating " in the pursuit " between the Sea of Azov and the Donetz river; in the northern sector detachments of the Spanish Legion were in action. Moscow was bombed from the air by day and night and Leningrad also at night.

A Rumanian communiqué announcing the capture of Odessa spoke of street fighting, but said that the population received the German-Rumanian forces with enthusiasm.

The Australian Navy reported that mines had been laid in the waters between Australia and New Guinea.

The Japanese Cabinet resigned.

R.A.F. bombers made a most successful attack upon a number of objectives at Naples during the night.

At night the R.A.F. bombed Duisburg and other objectives in the Ruhr, the docks at Dunkirk, Ostend and Calais, and shipping near the Frisian islands. Four of our aircraft were lost.

An enemy bomber was shot down into the sea just before dark; enemy aircraft were over eastern England during the night but no bombs were dropped.

17th October.—The Admiralty announced that H.M. corvette " Fleur de Lys " had been sunk.

**The Russians,** who repulsed several attacks West of Moscow, **announced** that **the evacuation of Odessa** by sea had been successfully completed. This operation had lasted eight days and was accomplished without interference from the German-Rumanian forces.

Germany announced the termination of the Briansk-Vyazma battle, claiming the annihilation of Marshal Timoshenko's forces, consisting of " eight armies." Murmansk and Moscow were bombed by German aircraft during the day and Moscow and Leningrad at night.

R.A.F. bombers made a daylight raid upon the seaplane base at Syracuse (Sicily).

Our aircraft made repeated attacks upon enemy communications in North Africa during the day. At night Benghazi was bombed in spite of bad weather.

Our aircraft carried out many attacks upon Italian positions near Azozo and Amba Georgis (Abyssinia).

The U.S. destroyer "Kearny" was torpedoed and damaged whilst on patrol duty 350 miles South-West of Iceland.

By Imperial command, General Tojo proceeded to form a new Japanese Cabinet.

At night R.A.F. bombers raided the aerodrome at Trapani (Sicily).

Aircraft of the Fleet Air Arm made a night attack on an enemy convoy in the central Mediterranean, securing direct hits with torpedoes on three merchantmen.

A night attack was made by the R.A.F. on the aerodrome at Elmas (Sardinia).

18th October.—The Russians were still heavily engaged before Moscow; near Kalinin and at one part of the Briansk sector the enemy was thrown back with heavy loss. Guerrilla operations were particularly successful in the Smolensk area.

Germany announced the continuation of a successful pursuit between the Sea of Azov and the Donetz river, and the capture of the town and harbour of Taganrog. Prisoners taken in the Briansk–Vyazma battle were now said to number nearly 660,000.

South African bombers raided the enemy landing grounds at Derna and El Gazala (Libya). At night R.A.F. bombers attacked Benghazi and naval aircraft an enemy dump at Sollum. Our patrols were active round Tobruk.

The British and Russian troops began to withdraw from Teheran to specified areas in accordance with an agreement made with the Government of Iran.

In the central Mediterranean during the night naval aircraft continued their attack upon the enemy convoy (see 17th October). Two ships were hit with torpedoes.

The progress of the German armies made the fate of Moscow the chief concern, but at the end of an anxious week the enemy was at no point within 60 miles of the city. His main forces were a considerably greater distance away. There were indications that Russian counter-attacks were beginning to take effect in some regions, and large Russian reinforcements had arrived. It was not clear if the seat of Government had been moved eastward from Moscow, but most of the foreign diplomatic staffs had left. Wintry weather had set in, adding to the German difficulties. The other danger zone was between the rivers Dnieper and Donetz, North of the Sea of Azov, where the enemy appeared to be approaching the industrial area.

As regards the supply of war material to Russia, Lord Beaverbrook, who had just returned from Moscow, stated on 12th October that a good start had been made towards meeting current requirements; but the great task was to equip the Russian armies for the spring. Tanks, guns and aeroplanes were needed in large numbers.

In a speech on 18th October Lord Croft, Joint Under-Secretary of State for War, envisaged a German drive for Batum and Baku in the spring when the Russo-British defensive zone in the Middle East would become of vital importance.

Lord Croft revealed that the total casualties of the British Army to date were approximately 100,000; the Australians had lost 13,000, the New Zealanders 6,000, and the South Africans 600, whilst the Indian casualties amounted to 7,000 and those of the African coloured troops to about 500. In proportion to its size the Royal Armoured Corps had suffered heavier loss than any other of the forces of the Empire.

The character of the new Prime Minister indicated that a definitely aggressive Japanese policy might be anticipated in the Far East. The U.S.A. recalled her merchant shipping from Japanese and Chinese waters.

On 16th October it was officially announced that two re-commissioned U.S. submarines were about to be transferred to Great Britain.

# CORRESPONDENCE

*(Correspondence is invited on subjects which have been dealt with in the Journal, or which are of general interest to the Services. Correspondents are requested to put their views as concisely as possible, but publication of letters will be dependent on the space available in each number of the Journal.*—EDITOR.)

## MILITARY DEFENSIVE TACTICS

*To the Editor of the R.U.S.I. Journal.*

SIR,—The well-written article in your August number on military defensive tactics contains one or two controversial points which deserve attention.

1. The writer says " the object of defence is to stop the enemy." Well and good, but what if our forces are not large enough to stop him ? Have you not the alternative of imposing delay on him by alternately stopping him, withdrawing and counter-attacking him ? A more comprehensive definition would be " the object of defence is to delay a decision until a more favourable opportunity."

2. Again the writer says " the system of holding detached posts instead of a line was invented by the Germans in late 1916 to counter our linear methods of attack." I cannot agree. The main reason was to obviate an undue proportion of forward divisions being destroyed by hostile shelling. The earlier policy of cramming over 50 per cent. of one's strength into the front system meant that one was putting too many eggs into one basket.

Linear and static defence is justly discredited. The answer to attack by panzer and dive-bomber is areas strongly defended against such attack. Close to these areas are reserves of panzer and dive-bomber ready to attack the attacking equivalents if they pass the defended areas. The object of this move is to create a gap between the forerunner and his supporting divisions and to destroy one or both. Divisions in line is what the panzer system of attack wants to find. This is because it knows that at some point in the line there will not be adequate strength of A.A. artillery or anti-tank guns to defeat the attempt to penetrate. The defence in modern war cannot try for a line safe everywhere and yet expect immediate assistance by adequate reserves.

The main advantage possessed by the offensive is that it can select the point at which it seeks a decision and bring off its surprise there. Linear methods prevent the defender having adequate reserves to counter this surprise.

The principal defence of Britain's coast is not best done by foot soldiers in pill-boxes and trenches but by plenty of reserves of armoured and air-borne divisions ready to strike. As the attack becomes faster and more mobile, so the reserves of the defence must have greater speed.

It appears to have been static defence that lost us Crete. We had not adequate reserves of aircraft or tanks or other troops to eject the enemy after he had effected a lodgment on our aerodrome. It is possible that some of the troops watching the coast on a static role would have been better placed in reserve.

3. Thirdly, in enumerating the advantages of artillery over dive-bomber the writer omits to allude to the effect of the dive-bomber on morale. It is generally admitted that the sight and still more the noise of low-swooping dive-bombers produces a demoralizing effect. Greater casualties effected by artillery do not seem to have the same effect on the spirits of the defenders.

A. J. MCCULLOCH,
*Major-General.*

*30th September*, 1941.

*To the Editor of the R.U.S.I. Journal.*

SIR,—The author of the article in your August JOURNAL, " Military Defensive Tactics," has raised several points of prime importance.

I am not concerned with his arguments as to " linear " defensive positions which, no doubt, will be answered by persons more competent. I am, however, concerned over the artillery aspect and would refer to the following :—

(*a*) On page 450 it is emphasized that a " perfect " barrage will stop a " perfect attack." Here I disagree, for if an attack is " perfect " it equally should overcome a " perfect " barrage. Is it not more practical to say that a defensive barrage has never yet stopped determined infantry, and leave it at that ?

(*b*) I gather that the author visualizes the artillery putting down a continuous line of defensive (S O S) fire along the whole front of the defensive position being threatened. This, under modern conditions, is based on a false premise because the guns do not exist to cover such frontage. For example, a field regiment can cover adequately only a frontage of 840 yards at, say, 35 yards per 25-pr. With three field regiments in the divisional artillery the " linear " frontage will be only 2,520 yards. I have yet to hear of a division on such a front in this war. In defence *all* weapons (small arms and artillery) are given tasks, in which their characteristics are fitted, into providing a continuous belt of fire along the front of the position.

(*c*) On page 453, it is stated that the dive-bomber is inefficient as compared with artillery as a destructive or neutralizing weapon in a counter-battery role. I would ask—having regard to the fact that a large proportion of the enemy artillery will be in battle positions, and so silent, until the attack opens—how is the defending (or attacking) artillery to know the location of these hostile batteries before they open fire at zero hour ? I feel that bombing may well be the only method of providing counter-battery fire at this stage of the battle.

(*d*) On pages 451 and 453, it is stated that the 25-pr. shell covers a rectangle 100 yards by 400 yards. Here, again, I beg to differ, and without going into too much detail it suffices to say that the lethal area of the shell is according to our manuals 35 yards diameter. Surely the author is confusing the area in which the attacker " will " get hurt, with the area in which he " may " get hurt !

I mention this because it is essential to counteract the theoretical and optimistic data, *e.g.*, App. " B " " The impervious barrage," put forward in this article, which may give the infantry (whom the Gunner is always ready to support) a false impression of the capabilities of the field artillery.

J. D. SHAPLAND,
*Colonel.*

*6th October*, 1941.

## MECHANICAL TRAINING FOR CADETS

*To the Editor of the R.U.S.I. Journal.*

SIR,—As boys leave primary schools at the age of fourteen, and secondary schools usually at the age of sixteen, it is instructive to question at this juncture what Government compulsion is exercised until the age of eighteen or twenty during a period of great national effort.

The answer appears to be in the negative. Does not the raising of the school age to fifteen, although compulsory, appear as a post-war adumbration, and the exploitation of Youth Service Corps for social purposes as a red herring across the path of national obligation and discipline and an additional source of expense to the tax-payer ?

It is true that some measure of Government support is given to voluntary organizations such as Sea Cadet Corps, Air Training Corps, and the British National Cadet Association. As, however, the work of these organizations is un-co-ordinated, the most enterprising, the Air Training Corps, is able to avail itself of the services of boys of 15½–16 onwards, who have often been trained by the other organizations and by those unsupported by the Government, such as Boy Scouts and Boys' Brigades.

Whilst admiring the enterprise and vision of the Air Training Corps, the point of view of the other two organizations in the national effort cannot be ignored. The Navy can take care of itself, but the Army, since the death of Cromwell, has been the Cinderella of the Services and the sport of politicians.

With the urge of greater mechanization, however, we dare not stand still, and we realize that most boys, though mechanically minded, are not necessarily air-minded or anxious to go to sea. As, unfortunately, so many leave school at the age of sixteen, the opportunity of bridging the gap of one year until they are eligible for the Home Guard at seventeen is lost.

The last numbers available of the Cadet Force, about 20,000, bear out this defect. Would not additional mechanical and specialized training increase not only the Cadet Force but also the Home Guard and the Royal Armoured Corps ? Many boys are eager to join the various mechanized and specialist units of the Army, and it is obvious that some such instruction is within the framework of the Cadet Force.

Accordingly, a modest syllabus of specialized training is being attempted in the County of Surrey, consisting of (1) Mathematics, including elementary magnetism and electricity (practical), (2) Internal Combustion Engine (practical). The standard aimed at should be that possessed by keen motor cyclists and radio fans. Text books : " The Motor Manual " (Temple Press) ; " The Auto-car Manual " (Iliffe).

It is hoped that the local Education authorities and various qualified and interested persons will help us in the technical training.

Moreover, as our boys are receiving military training within our limited powers, it is anticipated that the War Office will welcome this small effort and assist us by providing experts for the higher instruction.

The scheme may lead to the formation of more Cadet technical units, such as anti-tank, anti-aircraft, signal, etc., and possibly be the germ of a Voluntary Royal Armoured Corps, not unlike that of the Air Training Corps, with the necessary technical adjustments.

If later the school leaving age is raised to fifteen, and some kind of part-time compulsory education for working boys is adopted, the introduction of this scheme will be fully justified.

(The writer of these notes has recently visited an Officer Training Corps armoured section and the excellent and progressive Young Soldiers' Regiment, Royal Armoured Corps.)

Should not our Cadet training therefore follow these lines ?

BASIC (GENERAL MILITARY) TRAINING

(Certificate "A" standard to be aimed at)

Squad Drill.
Physical Training.
Anti-Gas Training, including Fire Fighting.
Field Engineering.
Weapon Training.
Tactics and Map Reading, including Reporting.

SPECIALIST TRAINING

Signalling. Morse and Wireless.
First-Aid Training.
Mechanized Training. Internal Combustion Engine.

We welcome heartily the issue of free uniforms, "quam celerrime" it is hoped, and the provision of facilities and grants from local Education authorities for Cadets; but mechanization should be "the mustard in the sandwich" of Cadet training.

F. G. POOLE,
*Lieut.-Colonel.*

*15th October*, 1941.

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## THE INVASIONS OF BRITAIN

*To the Editor of the R.U.S.I. Journal.*

SIR,—The reviewer of my small book—"The Invasions of Britain"—remarks that the author scarcely touches on the present war and that it would be most unwise to confine our studies to the histories of past attempts. This is of course perfectly true. But if, as he also rightly says, the book does not greatly help in elucidating the problem of invasion to-day, the reason is not only that "the perspective is too short," but also that that was not the object of the book. As the June number of "History" explains, the President of the Historical Association expressed the view that "there was need for a book setting out the facts about past attempts at the invasion of England." Such an account, and nothing more, I was asked to provide, with a limit of some 20,000 words. It was therefore not within my terms of reference to write a treatise on invasion. My task was similar to that of Colonel Bruce in 1798, when he was asked to report "What arrangements have been adopted, in former periods, when France threatened invasions of Britain and Ireland, to frustrate the designs of the enemy . . ."

Still, I venture to believe that, in spite of these limitations, a purely historical record of fact is capable of serving a practical purpose. It emphasizes the highly important part the flotilla played in the strategy. If this fact had been present in the minds of those who decreed the reduction of our flotilla forces, and who pronounced the false theory that the number of our destroyers depends upon the number of foreign submarines, the preposterous limitation of our destroyer forces could hardly have passed into effect. And might it not also have been recognized that aircraft are an integral part of the Navy and that the anti-invasion flotilla forces extend from below the surface to the clouds?

H. W. RICHMOND,
*Admiral.*

*15th September*, 1941.

# GENERAL SERVICE NOTES

## Middle Eastern War Council

On 2nd October Captain O. Lyttelton, Minister of State, made the following statement in the House of Commons :—

" There is a Middle Eastern War Council under my chairmanship. The members of the Council are the British Ambassador in Cairo, the three Commanders-in-Chief and the Intendant-General, the British Ambassador in Baghdad and the High Commissioner of Palestine. The Governors of Cyprus and Aden are also members, and attend when they are able. A representative of the Government of India is shortly to be appointed.

" This body deals with general matters of policy within the framework laid down by the Government. There are sub-committees of the Middle Eastern War Council, of which the most important is the sub-committee on Supply and Transport, again under my chairmanship. This sub-committee deals primarily with those communications which are common to the three Services. Under it is the Middle Eastern Supply Centre, which was set up before my arrival. This body is in close liaison with the Eastern Supply Groups of Delhi, and is concerned with supplies, military and civil, over the whole area. I have found it convenient to hold regular meetings with the three Commanders-in-Chief, in order to deal with urgent Service matters, and give such assistance as I am able within my terms of reference, which include the task of relieving the Commanders-in-Chief of as many extraneous responsibilities as possible.

" My office in Cairo is organized on the same basis as the War Cabinet in London. I have the assistance of five administrative Civil servants. The senior has the grade of a Department Under-Secretary. There are two senior Civil servants—one a principal assistant secretary. The total members in my office, including the clerical staff, do not exceed 25.

" There are two departments associated with my office—namely, that of the Intendant-General, and the other for occupied enemy territory administration. I have also organized a propaganda department, which is charged with co-ordinating activities for the various propaganda bodies carrying on political warfare and propaganda in my sphere.

" After three months' experience of the working of this machine, which it has been my object to keep as small and as simple as possible, I think I can assure the House that the co-operation between these various bodies is satisfactory, and in particular the three Commanders-in-Chief and myself work in the greatest harmony and accord in resolving the difficulties that the combined operations of the three Services of all arms over a large political field necessarily entail."

# NAVY NOTES

## GREAT BRITAIN

### H.M. The King

It was announced on 13th August that the King had paid a three days visit to the Home Fleet in northern waters, staying on board the flagship, H.M.S. "King George V." In the Admiral's cabin the King knighted the Commander-in-Chief, Admiral Sir John Tovey, and invested him with the insignia of a K.C.B. Seven officers and fifteen ratings were also decorated. The King visited many ships of the Fleet and met officers and men who had taken part in the chase and destruction of the "Bismarck" and various other naval actions. His Majesty travelled to the northern port at which he embarked by air, flying in a R.A.F. Lockheed–Hudson aircraft piloted by his personal pilot, Wing Commander E. H. Fielden, with a fighter escort. This was the first time a King of England had gone to his Fleet by air.

The King and Queen on 28th July visited the Royal Merchant Navy School, of which His Majesty is Patron. On 6th August, their Majesties visited Hull and inspected the damage done to the city by air raids.

On 8th October, the King visited Liverpool. He was received at the docks by Admiral Sir Percy Noble, Commander-in-Chief, Western Approaches, whose headquarters he visited, and also saw a number of naval officers and men, including a contingent of the Dutch Navy. He also went on board one of the newest mine-sweepers and a destroyer. During the afternoon, his Majesty inspected men of the Merchant Navy and some of the amenities for their comfort in port.

The King has approved the appointment of Admiral of the Fleet Sir A. Dudley P. R. Pound, G.C.B., G.C.V.O., to be First and Principal Naval Aide-de-Camp to His Majesty, in succession to Admiral the Hon. Sir Reginald A. R. Plunkett-Ernle-Erle-Drax, K.C.B., D.S.O. The announcement was made on 2nd October, 1941.

### Promotions

On 20th October, the Admiralty announced the following promotions of Flag Officers :—

Rear-Admiral Edward L. S. King, C.B., M.V.O., to Vice-Admiral, to date 30th May, 1941.

Rear-Admiral William E. C. Tait, C.B., M.V.O., to Vice-Admiral, to date 1st October, 1941.

### Appointments

The following appointments were announced by the Admiralty on 1st October :—

Rear-Admiral A. U. Willis, C.B., D.S.O., to be Commander-in-Chief, Africa Station, with the acting rank of Vice-Admiral, in succession to Vice-Admiral Sir Robert H. T. Raikes, K.C.B., C.V.O., D.S.O.

Rear-Admiral Rhoderick R. McGrigor to be a Lord Commissioner of the Admiralty and an Assistant Chief of Naval Staff.

Rear-Admiral F. H. G. Dalrymple-Hamilton to be Flag Officer Commanding, Iceland, in succession to Rear-Admiral R. J. R. Scott, A.M.

Rear-Admiral Clement Moody to be Rear-Admiral, Naval Air Stations, in succession to Vice-Admiral R. B. Davies, V.C., C.B., D.S.O., A.F.C.

A Press message from Halifax, Nova Scotia, on 30th September, stated that Rear-Admiral S. S. Bonham-Carter, Rear-Admiral in the Third Battle Squadron and in command of British naval units in Canadian waters, had left Halifax with his staff, and no successor had been appointed.

## Honours and Awards

Reserve Ribbons.—The King has approved new ribbons for the Reserve Decoration and Medal. The new ribbon of the Reserve Decoration is dark green with a white border. The ribbon of the medal is dark green with a white central stripe. Previously, there had been one ribbon only for both officers and men which was dark green. The objection to it was that it did not show up on dark blue cloth, and was not sufficiently distinctive. Further, the ribbon was the same for officers' decoration and men's medal, and many officers were entitled to both. The white border resembles that on the dark blue R.N. Long Service and Good Conduct Medal. The narrow central stripe distinguishes the R.N.R. Medal ribbon from the Reserve Decoration in the same way as the ribbon of the D.S.M. is distinguished from the ribbon of the D.S.C.

Cape Matapan.—A number of awards to officers and men for services in the battle of Cape Matapan were announced in the *London Gazette* on 30th July.

Sinking of the "Bismarck."—A first list of awards to officers and men for services in the destruction of the German battleship "Bismarck" was published in the *London Gazette* on 16th September. A further list published on 14th October included the following:—

C.B.—Rear-Admiral (then Captain) F. H. G. Dalrymple-Hamilton, H.M.S. "Rodney"; Captain W. R. Patterson, C.V.O., R.N., H.M.S. "King George V."

K.B.E.—Vice-Admiral (acting Admiral) Sir John C. Tovey, K.C.B., D.S.O., Commander-in-Chief, Home Fleet.

C.B.E.—Rear-Admiral W. F. Wake-Walker, C.B., O.B.E.; Captain H. C. Bovell, R.N., H.M.S. "Victorious"; Captain (Commodore First Class) E. J. P. Brind, H.M.S. "King George V"; Captain L. E. H. Maund, R.N., H.M.S. "Ark Royal."

Force H.—On 21st October, it was announced that Vice-Admiral Sir James F. Somerville, K.C.B., D.S.O., had been appointed K.B.E. for gallantry, determination and resource in command of Force H.

East Africa.—On 1st October, it was announced that Captain J. H. Edelsten, R.N., H.M.S. "Shropshire," had been appointed C.B.E. for skill and judgment in operations off the coast of Italian East Africa.

## Personnel

Cadet Scholarships.—The first entry to which the new scheme of scholarships for the R.N. College, Dartmouth, applied was made in September (see the Journal for May, 1941, page 392). Replying to questions in the House of Commons

on 1st October, the Parliamentary Secretary to the Admiralty said that the numbers of applications received were :—

(*a*) From grant-aided secondary schools ... ... ... 279
(*b*) Scholarship candidates from other schools ... ... 65
(*c*) Ordinary entry only ... ... ... ... ... 66

Those in groups (*b*) and (*c*) came mostly from the usual preparatory schools. Some of the scholarship candidates were also candidates for the ordinary entry. The full number of scholarships has been awarded to each of the categories (*a*) and (*b*). One son of an ex-rating was successful in obtaining one of the ordinary scholarships from the secondary schools. No other son of a rating or ex-rating reached the standard required of the scholarship candidates ; the special scholarship for a son of a rating or ex-rating was therefore not awarded. The number of candidates from the other schools who did as well or better than the top candidates from the secondary schools was 10, so that all these obtained scholarships, and it can be said that the two classes of candidate were equal educationally. No comparison was made between the two classes of candidates from a physical point of view, but it can be stated that the number of medical rejections amongst the secondary school candidates was not above the normal.

Uniform Economy.—It was announced on 8th October that naval officers will in future wear gold lace distinguishing their rank only half-way round the cuffs of their sleeves instead of all round, as a war-time economy. Merchant Navy officers are being asked to conform to the order.

"Y" Scheme Badge.—Youths between 17 and 18 who have elected for service in the Navy when they reach calling up age and are accepted under the "Y" scheme of entry are now supplied with a special badge to be worn on the shoulder of the uniform (Home Guard, Sea Cadets, J.T.C., etc.) of the corps in which, under that scheme, they must be enrolled during the interval. The badge consists of a naval crown in a wreath of oakleaves.

Airgraphs.—The Postmaster General announced on 1st October that airgraph messages may now be sent, price 3d., to men of the Forces in Aden and Iraq and to men in the Navy serving in the Red Sea or Persian Gulf.

Family Allowances.—Captain Margesson, Secretary of State for War, in a written reply to a Parliamentary question on 9th September, explained a new code of allowances in respect of wives and children of officers which had been adopted with effect from 1st September. The First Lord of the Admiralty announced that similar adjustments were being made in the Royal Navy and Royal Marines.

Work of Naval Engineers.—Speaking in London on 19th September, Mr. Alexander, the First Lord, said that the Navy owed an ever-increasing debt to its engineers, both constructionally and operationally. The events of the War had placed on the Navy such a strain as no fleet had ever had to bear. He was assured by the Naval Staff that the average endurance of units of the Fleet—the time they spent uninterruptedly at sea—had been at least twice what could have been foreseen when the war began ; and that statement appeared to him to be the usual careful underestimate. He mentioned that in the chase of the "Bismarck," H.M.S. "Rodney," although already long overdue for a refit to her boilers, got orders to steam at full speed, and was worked up to at least two knots more than she was thought capable of at the best of times—a tribute alike to the engines themselves, to the engineers who designed them, and the craftsmen who built them.

### Women's Royal Naval Service

The Duchess of Kent, Commandant, inspected units of the Women's Royal Naval Service in the London area on 5th August, at a R.N. Training Establishment on 14th August, on the East Coast on 15th August and 1st October, and on the South Coast on 22nd August. On 2nd October, the Duchess visited a training establishment in the London area.

### Material

Repairs in U.S.A.—The United States Navy Department announced on 19th September that the following twelve British warships were then in United States ports for repairs, provisioning or other purposes :—

*Battleship.*—" Warspite," at Bremerton, Washington.

*Aircraft-Carriers.*—" Illustrious " and " Formidable," at Norfolk, Virginia.

*Cruisers.*—" Delhi " and " Dido " at Brooklyn ; " Liverpool " and " Orion " at Mare Island, California.

*Corvettes.*—" Nasturtium " and " Primrose " at Charleston, South Carolina.

*Submarine.*—" Pandora " at Portsmouth, New Hampshire.

*Minesweeper.*—" Menestheus " at Baltimore.

*Armed Merchant Cruiser.*—" Asturias " at Newport News, Virginia.

A week later the Navy Department announced that the British submarine " Parthian " and the Free French submarine " Surcouf " were at Portsmouth, New Hampshire, and the British (ex-American) destroyer " Burnham " at Boston, Massachusetts, being repaired under the Lease and Lend Act. Altogether twenty-seven British and Free French craft were undergoing or had undergone repairs in the United States.

Submarines from U.S. Navy.—On 16th October, Colonel Knox, Secretary of the United States Navy, announced that two United States submarines, both then operating in the Atlantic, would be transferred to Great Britain under the Lease and Lend Act, and would be manned by British officers and crews before leaving American waters. One is of the " R " type, first commissioned in 1919, taken out of commission in 1930, and recommissioned in 1940. Such submarines have a displacement of 530 tons. The other is of the " S " type, first commissioned in 1923, taken out of commission in 1930, and recommissioned in 1940. It has a displacement of 830 tons.

### The Defence of Malta

On 7th September, Admiral Sir Andrew Cunningham, Commander-in-Chief, Mediterranean Fleet, telegraphed to Lieutenant-General Sir William Dobbie, Governor of Malta, a message of admiration on behalf of the Fleet for the gallant behaviour of the Malta people and garrison. He said : " Malta not only stands undaunted while her houses and valued monuments have suffered, but fights back with such magnificent spirit that the enemy has found it well to keep his distance. No better example of the vigilant efficiency is needed than the complete extermination of the forces which so unsuccessfully attempted to attack the Grand Harbour recently. Malta, in very truth, has proved a rock of strength to her friends and a thorn in the enemy's side

In his reply, Sir William Dobbie said there was no one from whom they would rather have received a generous tribute, adding: "We are conscious of the inestimable debt we owe you for keeping our supply lines open throughout these many months. All regard the Fleet as part of Malta, and its fortunes are indissolubly bound up with our own. Victory will bring Malta no happier reward than the knowledge that the Mediterranean Fleet is once more peacefully established in its harbours."

### U.S. Honour for Little Ships at Dunkirk

The Cruising Club of America, which awards its Blue Water Medal annually for the most meritorious feat of seamanship by an amateur yachtsman, has conferred the medal for 1940 on the Royal Cruising Club, to be held on behalf of all the British yachtsmen who shared in the rescue of the Allied Armies from the Dunkirk beaches.

The medal was formally presented early in August, 1941, by Captain Charles Lockwood, United States Naval Attaché in London, in the Old Hall of Lincoln's Inn. The Admiralty was represented by Vice-Admiral Sir T. Vaughan Phillips, Vice-Chief of the Naval Staff, and the Free French Navy by Vice-Admiral Muselier. The medal was accepted on behalf of the Royal Cruising Club by Mr. T. N. Dinwiddy, Vice-Commodore. A short speech was made by one of the yachtsmen who took part in the evacuation—Dr. B. A. Smith, a Chartered Accountant, who holds the D.S.M. for his services, and who expressed the hope that there may be "a return match" one day. The same hope was expressed by Admiral Sir Lionel Preston, Director of the Small Vessels Pool, from which were drawn the boats that went to Dunkirk.

## ROYAL NAVAL RESERVES

Promotion to Warrant Rank.—In an Order in Council, dated 11th September, it was stated that the Admiralty consider the needs of the Naval Services render it desirable that promotion to the rank of Warrant Officer should be authorised from time to time in those branches of the Naval Reserves in respect of which no provision for that rank has yet been made. The Order accordingly sanctioned, with effect from 3rd September, 1939, the institution of Warrant ranks in H.M. Naval Reserves corresponding to the Warrant ranks already instituted in H.M. Navy, promotion to such rank to be at the discretion of the Admiralty, and Reserve Officers so promoted to be eligible for the pay and emoluments laid down from time to time for corresponding ranks in the Royal Navy.

R.N.V.R. Medical Officers.—By Order in Council of 29th June, 1934, all entries of medical officers for permanent service in the Royal Navy are made from the list of Surgeon Lieutenants for short service. All entries into the R.N. Medical Service during hostilities, however, are made in the rank of temporary Surgeon Lieutenant, R.N.V.R. The Admiralty consider that a limited number of medical officers of the R.N.V.R. should be eligible for transfer to the permanent list of medical officers, R.N. Accordingly, an Order in Council dated 11th September, 1941, sanctions the transfer of R.N.V.R. medical officers, both permanent and temporary. The number is to be at Admiralty discretion.

## ROYAL MARINES

Colonel Commandant (temporary Brigadier) A. P. Dawson, O.B.E., has been appointed a Royal Marine Aide-de-Camp to the King in place of Colonel

Commandant (temporary Brigadier) G. H. Seath, D.S.O., promoted to Major-General (1st October, 1941).

Colonel Commandant G. H. Seath, D.S.O., A.D.C., is promoted to Major-General (1st October, 1941).

Colonel Second Commandant (acting Major-General) R. G. Sturges is promoted to Colonel Commandant (temporary Brigadier) (acting Major-General) (1st October, 1941).

## DOMINIONS AND COLONIES

### AUSTRALIA

AWARD.—The D.S.O. was awarded to Lieutenant-Commander A. H. Callaway, R.A.N.V.R., commanding H.M. trawler " Lady Shirley," for a most spirited action early in October, as a result of which a large German U-boat was destroyed and her crew taken prisoners.

The trawler was on patrol when a U-boat was sighted on the surface. The enemy immediately dived and the trawler attacked with depth charges. These forced the U-boat to the surface, where she was engaged by the trawler's 4-in. gun and machine guns. Some of the crew of the U-boat tried to man their gun but were stopped by machine-gun fire from the trawler. The U-boat opened fire with machine guns from the conning tower and the gunlayer of the " Lady Shirley's " 4-in. gun was killed. His place was at once taken by Sub-Lieutenant F. E. French, R.N.R., who kept the gun in action and scored several hits on the U-boat, the crew of which eventually surrendered, and were taken to Gibraltar. The complement of the " Lady Shirley " is no more than 30; the prisoners taken numbered 44, and were reported to have said that the U-boat's complement was 52.

AUXILIARY PATROL.—Mr. Hughes, then Minister for the Navy, announced at the end of July that a volunteer Naval Auxiliary Patrol for the whole of the Australian coast was to be recruited on an honorary basis. Boat-owners, fishermen, and other suitable men exempt from military service were expected to join the patrol.

### CANADA

LONDON MISSION.—Mr. Angus Macdonald, Canadian Minister of Naval Defence, Rear-Admiral Percy W. Nelles, Chief of the Canadian Naval Staff, and Captain F. L. Houghton, R.C.N., arrived in London in August to confer with British officers and officials on matters connected with the Dominion Navy.

LAUNCH.—A new destroyer for the Canadian Navy was launched in Britain in October and named the " Iroquois " by Mrs. Vincent Massey, wife of the High Commissioner for Canada. In a speech after the launch, Mr. Massey said that the growth in Canadian naval strength had been one of the most remarkable features of Canada's war effort. The number of vessels had grown from a dozen to 250 of all kinds, with a personnel of nearly 25,000. In addition, there were several hundred Canadians on loan to the Royal Navy. He added that the " Iroquois " was only one of a number of " Tribal " class destroyers being built for the Canadian Government.

EX-AMERICAN DESTROYERS.—Replying to a question in Parliament on 8th October, the Parliamentary Secretary to the Admiralty said that seven ex-United States destroyers had been transferred to the Royal Canadian Navy, namely :—" Annapolis," " Columbia," " Niagara," " Hamilton," " St. Clair," " St. Croix " and " St. Francis." The transfer of these vessels was not regarded

as a commercial transaction, but as the arrangement for the disposal of the vessels best fitted to help the common cause. The vessels were regarded as having become the property of H.M. Government in Canada from the time they were taken over from the United States.

Loss of H.M.C.S. "Levis."—Mr. Angus Macdonald announced on 28th September that the Canadian corvette "Levis" had been sunk in action; 17 Canadian seamen and one member of the Royal Navy were lost. The "Levis" was the first corvette built in Canada and manned by Canadians, to be sunk.

## NEW ZEALAND

Mr. Nash, the acting Prime Minister, announced in the New Zealand Parliament on 10th September that the King had approved of the New Zealand Naval Forces being given the distinction of the name "Royal New Zealand Navy," and of the ships being designated "His Majesty's New Zealand Ships."

## INDIA

Launches.—A corvette was launched in Scotland in October which had been presented to the Royal Navy by the Nizam of Hyderabad. It was named H.M.S. "Hyderabad" by Mrs. Amery, wife of the Secretary of State for India. In a speech after the launch, Mr. Amery recalled that the Nizam had presented £150,000 for the creation, equipment and maintenance of a fighter squadron named after the State, which played a most distinguished part in the Battle of Britain.

H.M.S. "Baroda," a minesweeper and anti-submarine trawler, was launched at Howrah on 22nd October. She is being built for the Royal Indian Navy at the Shalimar Works entirely by Indian labour. The cost is being largely defrayed by the Maharaja of Baroda.

R.I.N. in the Atlantic.—Speaking at Aberdeen on 23rd September, Mr. L. S. Amery said that India had raised an army approaching 1,000,000 men. Her Navy was growing fast, and it was no secret that some of the ships of the Royal Indian Navy, manned by Indian officers and ratings, had even taken part in the battle of the Atlantic in recent months.

## ALLIED NAVAL FORCES

Statistics were issued by the Ministry of Information early in September of the strength of the Allied Navies and Merchant Fleets operating with the British forces at sea. There were 187 warships, manned by 14,730 officers and men, and 1,617 merchant ships, totalling 7,250,000 tons.

Among the warships are:—One cruiser, of the Royal Netherlands Navy; 19 destroyers—three Free French, six Norwegian, four Dutch, and six Polish; and 19 sloops or corvettes—eleven Free French, four Norwegian, and four Dutch. Minor craft of which details were given number 154.

Details were also published of the numbers of Allied merchant ships and their tonnage sunk by the enemy since each became a belligerent up to June, 1941. Norway heads the list with 121 ships lost; followed by Holland, 77 ships; Greece, 65; Belgium and France, 34 each; and Poland, 4; making a grand total of 335 ships, of 1,502,393 tons.

On 27th August, the Commander-in-Chief, Royal Norwegian Navy, announced that the ex-American destroyer "Bath," manned by the Royal Norwegian Navy, had been sunk. This was the first of the fifty ex-American destroyers to be lost on Allied service.

## FOREIGN

### FINLAND

It is reported that the 3,900-ton coast defence ship " Ilmarinen " was sunk in an engagement with the Russian batteries at Hango. This was one of the two ships completed in 1930–31, armed with four 10-in. and eight 4.1-in. guns.

### GERMANY

LOSSES.—Further losses to the German fleet which have been reported since last quarter include a 6,000-ton cruiser, believed to have been the " Köln," and the gunnery training ship " Bremse " of 1,460 tons.

The number of U-Boats sunk is not published, but two at least have been captured : one, the U-73, by the Soviet Navy early in September and the other, the U-570, as a result of an action by a Hudson aircraft in the Atlantic on 8th September.

### ITALY

LOSSES.—It is estimated that Italy must have lost well over thirty destroyers and torpedo boats since the outbreak of war. Her latest casualties are those which took place at the time of the annihilation of a convoy of ten ships in the Mediterranean on 9th November, when four destroyers were sunk.

### JAPAN

MAIN FLEET.—The following are the latest published figures of the Japanese main fleet :—

*Battleships.*—There are ten completed battleships of which the latest are the " Nagato " and " Takamatu " of 32,000 tons, armed with eight 16-in. guns ; they had a speed on trials of about 23 knots. The remainder are all 14-in. gun ships, four with twelve and four with eight of these guns ; all were completed during or prior to the last war. There are believed to be three or four ships of 40,000 tons or more displacement building, and it is reported that they will be armed with nine 16-in. guns and have a speed of about 30 knots.

*Armoured ships.*—Three or four armoured ships of some 15,000 tons are in various stages of construction ; it is possible that one has been completed. They are armed with six 12-in. guns and are reported to have a designed speed of 30 knots. They appear to be modelled on the German " pocket battleship " design.

*Aircraft Carriers.*—There are eight carriers, the two largest being of about 23,000 tons armed with ten 8-in. guns. The latest, of 14,000 tons, are armed with twelve 5-in. guns. There are three of 10,000 tons ; the remaining two being between 7,000 and 8,000 tons. A ninth ship is building.

*8-in. Cruisers.*—There are twelve of these, eight being of 10,000 tons armed with ten 8-in., and four of 7,000 tons armed with six 8-in. guns.

*Light Cruisers.*—About twenty-three. The latest type of which details have been published are ships of 8,500 tons carrying twelve 6.1-in. guns. An earlier type of the same displacement carried fifteen 5.1-in. guns, but in the newest type the after guns have been replaced by an aircraft hangar. The older ships carried seven 5.5-in. guns. The standard speed for all light cruisers appears to be 33 knots.

*Destroyers.*—About 125. Many more are building.

*Submarines.*—About 80, and probably more building.

# ARMY NOTES

## H.M. The King

On 12th September the King inspected a division of the Royal Armoured Corps in the Eastern Command.

On 18th September the King, who was accompanied by the Queen, inspected units of the 3rd Canadian Division.

On 24th September the King inspected No. 4 (Buckingham Palace) Company, 1st County of London (Westminster) Battalion, Home Guard. This company is composed of members of the Royal Household and servants employed in the Palace.

Early in October the King visited a Scottish Command where he saw men of the Combined Training Command carry out beach landings, raids and assaults on the shores of a loch.

On 22nd October the King inspected troops in the Western Command.

On 24th October the Queen presented Colours to the 1st Battalion, The Saskatoon Light Infantry.

The King has been pleased to approve the following appointments :—

To be Aide-de-Camp General to the King.—General Sir Archibald P. Wavell, G.C.B., C.M.G., M.C. ; 17th August, 1941.

To be Aide-de-Camp to the King.—Colonel (temporary Brigadier) L. W. H. Mathias, D.S.O., Indian Army ; 15th May, 1941.

To be Hon. Physicians to the King.—Lieut.-General A. Hood, C.B.E., M.D. (late R.A.M.C.) ; 1st August, 1941.

Major-General P. S. Tomlinson, C.B., D.S.O., M.R.C.P. (late R.A.M.C.) ; 10th August, 1941.

Colonels Commandant.—The under-mentioned to be Colonels Commandant, the Royal Army Medical Corps :—

Lieut.-General Sir James A. Hartigan, K.C.B., C.M.G., D.S.O., M.B., D.Ch., retired pay (late R.A.M.C.) ; 8th August, 1941.

Major-General H. P. W. Barrow, C.B., C.M.G., D.S.O., O.B.E., retired pay (late R.A.M.C.) ; 27th August, 1941.

To be Controller Commandant, Auxiliary Territorial Service.—Chief Controller, H.R.H. The Princess Royal, C.I., G.C.V.O., G.B.E. ; 19th July, 1941.

Colonels of Regiments :—

Colonel (hon. Brigadier) R. M. Birkett, D.S.O., retired pay, to be Colonel of the Royal Sussex Regiment ; 30th July, 1941.

Colonel (temporary Brigadier) C. E. R. G. Alban, D.S.O., A.D.C., to be Colonel of the King's Regiment (Liverpool) ; 24th October, 1940.

### Army Council

The King has been pleased by Letters Patent under the Great Seal bearing date the 21st day of July, 1941, to appoint the following to be His Majesty's Army Council :—

Captain the Right Honourable H. D. R. Margesson, M.C.—President.

Brigadier-General Henry P., Baron Croft, C.M.G., T.D.—Vice-President.

General Sir John G. Dill, K.C.B., C.M.G., D.S.O., A.D.C. General.

Lieut.-General Sir Ronald F. Adam, Bt., K.C.B., D.S.O., O.B.E.

General Sir Walter K. Venning, K.C.B., C.M.G., C.B.E., M.C.

Major-General (temporary Lieut.-General) Sir Henry R. Pownall, K.B.E., C.B., D.S.O., M.C.

Captain E. D. Sandys.

Sir Robert J. Sinclair, K.B.E.

Sir Percy J. Grigg, K.C.B., K.C.S.I.

### Honours and Awards

*Victoria Cross.*—The King has been pleased to approve the award of the Victoria Cross to :—

(*a*) Second Lieutenant C. H. Upham, New Zealand Military Forces—in recognition of a series of remarkable exploits during the operations in Crete showing outstanding leadership, tactical skill and utter indifference to danger.

(*b*) Sergeant A. C. Hulme, New Zealand Military Forces—in recognition of most outstanding and inspiring qualities of leadership, initiative, skill, endurance, and most conspicuous gallantry and devotion to duty during the operations in Crete.

(*c*) Sergeant J. D. Hinton, New Zealand Military Forces—in recognition of outstanding gallantry and leadership during the operations in Greece.

(*d*) Private J. H. Gordon, Australian Military Forces—in recognition of outstanding gallantry and initiative during the operations in Syria.

*George Cross.*—The King has been pleased to approve the award of the George Cross to Second Lieutenant (acting Lieutenant) B. S. T. Archer, Royal Engineers—in recognition of most conspicuous gallantry in carrying out hazardous work in a very brave manner.

### Appointments and Promotions

The following appointments have been announced :—

*To be Director-General, Army Medical Services, War Office.*—Lieut.-General A. Hood, C.B.E., M.D. (late R.A.M.C.) ; 1st August, 1941.

*To be Major-General, General Staff.*—Colonel (temporary Major-General) F. G. Beaumont-Nesbitt, C.V.O., M.C. ; 15th June, 1941.

*Commanders.*—The undermentioned Colonels (temporary Brigadiers) to be Commanders, with acting rank of Major-General :—

G. C. Bucknall, M.C. ; 29th July, 1941.

M. B. Burrows, D.S.O., M.C. ; 1st December, 1940.

*To be specially employed*, with acting rank of Major-General :—

Colonel (temporary Brigadier) R. G. Lewis ; 26th July, 1941.

*The undermentioned have relinquished their appointments* :—

Lieut.-General Sir William P. MacArthur, K.C.B., D.S.O., O.B.E., M.D., D.Sc., F.R.C.P., F.R.C.P.I., K.H.P. (late R.A.M.C.) as Director-General, Army Medical Services, War Office ; 1st August, 1941.

Major-General B. T. Wilson, C.B., D.S.O., as a Commander ; 29th July, 1941.

Lieut.-General M. G. H. Barker, C.B., D.S.O., a special appointment ; 15th August, 1941.

Major-General R. H. Dewing, C.B., D.S.O., M.C., a special appointment ; 21st June, 1941.

Major-General G. H. Addison, C.B., C.M.G., D.S.O., retired pay, as an Inspector ; 22nd August, 1941.

Major-General R. J. Collins, C.B., C.M.G., D.S.O., retired pay, as Commandant ; 8th October, 1941.

Major-General R. C. Priest, C.B., M.D., F.R.C.P., K.H.P., as Inspector of Medical Services ; 13th October, 1941.

The following promotions have been announced :—

*Generals*—

The undermentioned Lieut.-Generals to be General :—

Sir Clive G. Liddell, K.C.B., C.M.G., C.B.E., D.S.O. ; 5th September, 1941, with seniority 6th February, 1941.

Sir James H. Marshall-Cornwall, K.C.B., C.B.E., D.S.O., M.C. ; 10th September, 1941, with seniority 5th May, 1941.

*To be Honorary General* :—

Honorary Lieut.-General His Exalted Highness Nawab Sir Mir Usman Ali Khan Bahadur, G.C.S.I., C.B.E., Nizam of Hyderabad and Berar.

*Lieut.-Generals*—

The undermentioned Major-Generals to be Lieut.-General :—

A. Hood, C.B.E., M.D. (late R.A.M.C.) ; 1st August, 1941.

H.R.H. The Duke of Gloucester, Earl of Ulster, K.G., K.T., K.P., G.C.M.G., G.C.V.O. ; 17th September, 1941.

The undermentioned Major-Generals (temporary Lieut.-Generals) to be Lieut.-General :—

Sir Wilfrid G. Lindsell, K.B.E., D.S.O., M.C. ; 15th August, 1941.

B. C. T. Paget, C.B., D.S.O., M.C. ; 5th September, 1941, with seniority 5th August, 1941.

H. E. Franklyn, C.B., D.S.O., M.C. ; 10th September, 1941, with seniority 6th August, 1941.

The undermentioned Major-Generals to be acting Lieut.-General :—

C. A. Bird, C.B., D.S.O. ; 1st July, 1941.

E. C. A. Schreiber, D.S.O.; 8th May, 1941.

F. N. Mason-MacFarlane, C.B., D.S.O., M.C.; 25th June, 1941.

To be local Lieut.-General :—

Major-General Sir Hastings L. Ismay, K.C.B., D.S.O.; 20th September, 1941.

*Major-Generals—*

The undermentioned Colonels (temporary Major-Generals) to be Major-General :—

R. B. Pargiter; 12th August, 1941, with seniority 23rd November, 1940.

C. J. S. King, C.B.E.; 15th August, 1941, with seniority 26th November, 1940.

S. C. M. Archibald, M.C.; 5th September, 1941, with seniority 2nd December, 1940.

H. E. de R. Wetherall, C.B., D.S.O., O.B.E., M.C.; 10th September, 1941.

K. M. Loch, M.C.; 18th September, 1941.

The undermentioned Colonels (acting Major-Generals) to be Major-General :—

E. G. Miles, D.S.O., M.C.; 16th June, 1941, with seniority 20th November, 1940.

P. S. Tomlinson, D.S.O., M.R.C.P. (late R.A.M.C.); 10th August, 1941.

The undermentioned Colonel (temporary Brigadier) to be Major-General :—

A. Hood, C.B.E., M.D. (late R.A.M.C.); 1st August, 1941.

The undermentioned Colonels (acting Major-Generals) to be temporary Major-General :—

H. E. de R. Wetherall, D.S.O., O.B.E., M.C.; 11th August, 1941.

G. J. P. St. Clair, D.S.O.; 30th August, 1941.

R. G. W. H. Stone, D.S.O., M.C.; 2nd September, 1941.

E. B. B. Hawkins, D.S.O., O.B.E.; 24th September, 1941.

F. K. Simmons, M.V.O., O.B.E., M.C.; 1st October, 1941.

J. N. Kennedy, M.C.; 14th October, 1941.

The undermentioned Colonels (temporary Brigadiers) to be acting Major-General :—

C. M. Finny, O.B.E., M.B., F.R.C.S., K.H.S. (late R.A.M.C.); 10th August, 1941.

G. R. Smallwood, M.C.; 14th September, 1941.

A. G. B. Buchanan; 22nd September, 1941.

E. C. Hayes; 22nd September, 1941.

C. C. Fowkes, C.B.E., M.C.; 14th September, 1941.

J. I. Chrystall, C.B.E., M.C.; 16th July, 1941.

The undermentioned Lieut.-Colonels (temporary Brigadiers) to be acting Major-General :—

A. W. C. Richardson, D.S.O.; 20th September, 1941.

W. H. E. Gott, D.S.O., M.C.; 6th September, 1941.

THE ARMY IN INDIA.—The India Office has announced the following appointments and promotions :—

*To be District Commanders* :—

Major-General T. G. G. Heywood, C.B., O.B.E., British Service ; 23rd July, 1941.

Major-General F. V. B. Witts, C.B.E., D.S.O., M.C., British Service ; 23rd July, 1941.

*Major-Generals.*—The undermentioned Colonels (temporary Brigadiers) to be acting Major-Generals :—

R. M. M. Lockhart, M.C. ; 28th April, 1941.

G. W. Hodgen, O.B.E. ; 23rd June, 1941.

### THE ARMY IN PARLIAMENT

In his speech in the House of Commons on 30th September reviewing the progress of the war, the Prime Minister referred to the Army in the following terms :—

" I must say a few words about the British Army. There is a current of opinion, which finds frequent expression, that the brass hats and Colonel Blimps and, of course, the much-abused War Office, are insisting on building up a pretentious, distended, and bloated mass of soldiers in this island at the expense of the manufacture of those scientific weapons and appliances which are the main strength of victory in modern war.

" The truth is far different. We have never had and never shall have an Army comparable in numbers to the armies of the Continent. At the outbreak of war our Army was insignificant as a factor in the conflict. With very great care and toil and time, we have now created a medium-sized, but very good Army. The cadres have been formed ; the battalions, batteries, divisions and corps have taken shape and life. Men have worked together in the military units for two years. Very severe training was carried out all through last winter. It will continue all through this winter. The Army is hardened, nimble, and alert. The commanders and staff have had opportunities and are having opportunities of handling large-scale movements and manœuvres. Our Army may be small compared with the German or Russian armies. It has not had the repeated successful experiences of the German Army which are a formidable source of strength.

" But, nevertheless, a finely tempered weapon has been formed. It is upon this weapon, supported by nearly 2,000,000 of armed and uniformed Home Guard, that we rely to destroy or hurl into the sea any invader who succeeded in making a number of successive or simultaneous lodgments on our shores. When I learned about the absolutely frightful, indescribable atrocities which the German Police Troops are committing upon the Russian population in the rear of the advance of their armoured vehicles, the responsibility of His Majesty's Government to maintain here at home an ample high-class force to beat down and annihilate any invading lodgments from the sea or descent from the air comes home to me in a significantly ugly and impressive form. I could not reconcile such responsibilities with breaking up or allowing to melt away the seasoned, disciplined fighting units which we have uow at last laboriously and so tardily created.

"As our Army must necessarily be small compared with European standards, it is all the more necessary that it should be highly mechanized and armoured. For this purpose a steady flow of skilled tradesmen and technicians will be required in order to use the weapons which the factories are now producing in rapidly increasing numbers. There is no question of increasing the numbers of the Army, but it is indispensable that the normal wastage—considerable even when troops are not in contact with the enemy—should be made good and that the ranks should be kept filled and that the battalions, the batteries, and the tank regiments should be at their proper strength. Above all, we cannot have the existing formations pulled to pieces and gutted by taking out of every platoon and section trained men who are an essential part of these living entities on which, one of these fine or foggy mornings, the whole existence of the British nation may depend.

"I hope, indeed, that some of our ardent critics out of doors—I have nothing to complain of inside here—will reflect a little on their own records in the past and by searching their hearts and memories will realize the fate which awaits nations and individuals who take an easy and popular course or who are guided in defence matters by the shifting minds of well-meaning public opinion. . . . . .

"Our hearts go out to our British Army, not only to those who in the Mediterranean and in the East may soon have to bear the brunt of German fury and organization, but also to that splendid but not too large band of men here at home whose task is monotonous, unspectacular, whose duty is a long and faithful vigil but who must be ready at any hour of any day to leap at the throat of the invader. It may well be the occasion will never come. If that should be the final story, then we may be sure that the existence of the kind of army we have created would be one of the reasons why, once again in a war which has ravaged the world, our land will be undevastated and our homes inviolate."

### General

G.H.Q. Liaison Regiment.—At the beginning of August the formation of a new specialized unit in the British Army—the G.H.Q. Liaison Regiment—was made known. Its mission, broadly stated, is to maintain direct communication between the battle and the Commander-in-Chief. The regiment has motor-cycles, fast little scout cars equipped with wireless and even small aircraft piloted by the officers themselves. The establishment of the regiment includes a high proportion of officers.

Imperial Troops in Greece and Crete.—The Secretary of State for War gave in the House of Commons on 7th August information about the number of Imperial troops sent to and evacuated from Greece and Crete.

Full details, he said, were not yet available, and it was not possible at this stage to say how many of the missing were prisoners of war. The figures were :—

GREECE

| *Forces* | *Total strength at start of German attack* | *Evacuated* |
|---|---|---|
| British ... ... ... ... | 24,100 | 16,442 |
| Australian ... ... ... | 17,125 | 14,157 |
| New Zealand ... ... ... | 16,532 | 14,266 |
| Totals ... | 57,757 | 44,865 |

CRETE

| Forces | Total strength at start of German attack | Evacuated |
|---|---|---|
| British ... ... ... | 14,000* | 7,130 |
| Australian ... ... ... | 6,450* | 2,890 |
| New Zealand ... ... ... | 7,100* | 4,560 |
| Totals ... | 27,550* | 14,580 |

* Including men evacuated from Greece and not re-evacuated to Egypt before the operations in Crete.

UNITS IN THE SYRIAN CAMPAIGN.—It was announced on 6th August that units of the following corps and regiments took part in the Syrian operations (in addition to the Australian infantry battalions) :—

Household Cavalry Regiment.
Royal Dragoons.
Royal Scots Greys.
13th D.C.O. Lancers (Indian Army).
Wiltshire Yeomanry.
Warwickshire Yeomanry.
Cheshire Yeomanry.
Staffordshire Yeomanry.
Royal Artillery.
Royal Australian Artillery.
Royal Engineers.
Queen's Royal Regiment.
King's Own Royal Regiment.
Royal Fusiliers.
Leicestershire Regiment.
Border Regiment.
Essex Regiment.
Durham Light Infantry.
1st Punjab Regiment
Rajputana Rifles
Frontier Force Regiment
Frontier Force Rifles
Gurkha Rifles
} Indian Army.
Trans-Jordan Frontier Force.
Arab Legion.

ARMY BUREAU OF CURRENT AFFAIRS.—On 20th August the War Office announced the institution of an Army Bureau of Current Affairs, the purpose of which, broadly stated, is that every soldier at home and abroad shall be kept informed of the happenings and trends of the world. This information is to be imparted as a part of normal training. It is intended that at least once a week all units, on a platoon and sometimes company basis, shall be formed into discussion groups and addressed on current affairs by their commanders.

The scheme will be administered under the Director-General of Army Welfare and Education, with the authority of the Army Council. General Sir John Dill, Chief of the Imperial General Staff, commending it to all commanders, says :—" Interest in current affairs, including the events of the war, induces confidence ; confidence is one of the ingredients of unshakable morale."

The new branch, which will be known as " ABCA," is a development of the many efforts towards Army welfare and education made by the responsible directorate and by commanding officers themselves. As a beginning every Army officer will receive in alternate weeks two fortnightly bulletins, named " War " and " Current Affairs," compiled by a staff of experts.

" War " will provide general military intelligence from all theatres of operations. " Current Affairs " will aim at providing a background against which events may be assessed and understood, and it is hoped that in these two publications the regimental officer will find inspiration for his talks to his men.

FILMS FOR ARMY USE.—In view of the growing demand for films in the Army for training, education and recreation, the Army Council have decided to appoint a Director of Cinematography at the War Office with an appropriate staff; the appointment will be held by a civilian. The Army Council, after consultation with representative organizations in the industry, have secured the services of Mr. Paul Kimberley as Director at the War Office; Mr. Kimberley has accepted the appointment in an honorary capacity.

As Director of Cinematography he will be responsible for providing and exhibiting all films required by the Army (at home and abroad) for training, educational and recreational purposes. The appointment will carry with it the chairmanship of the committee representative of certain sections of the industry, which has been available to advise the War Office on technical questions for some time, and it is probable that the scope of this committee will be widened on the appointment of the new Director. The Director will have under his control the central distributing and servicing organization which is to handle all equipment and films. Army Commands will be provided with small cinema sections composed of skilled Service personnel to operate and maintain the equipment, and manage the film libraries which are being provided on a scale sufficient to enable the fullest use to be made of films for military training, education and recreation.

NEW WAR OFFICE POST.—A change in organization at the War Office has resulted in the institution of a post of Engineer-in-Chief, the first holder of which is Major-General C. J. S. King, M.Inst.C.E.

Among the duties to be carried out by the Engineer-in-Chief are the general consideration of planning and control of engineer work for the Army, the control over the Works Services of the Army, arrangements for provision of all engineer material and plant required in peace and war, and liaison with the cognate civilian professions of engineering. The last includes the study of developments of engineering at home and abroad and the organization of the resources of the engineering professions to give the best service to the Army in peace and war.

AMERICANS AND THE KING'S ROYAL RIFLE CORPS.—The connection between the United States and the K.R.R.C. has been revived by the recent enlistment into the regiment of a few young Americans, who are now training at Winchester before going forward for their Commissions. Major-General Sir John Davidson, Colonel-Commandant of the regiment, has secured authority for a scheme for bringing American university graduates to this country to take up commissions in the 60th Rifles.

It will be remembered that the K.R.R.C. was originally raised in 1755, first as the 62nd—soon changed to 60th—Royal American Regiment and was recruited from American colonists, mainly in the States of Massachusetts, New York, Pennsylvania, Maryland and North Carolina.

ARMY CASUALTIES.—Lord Croft, Parliamentary Under-Secretary for War, speaking on 18th October, stated that the total casualties of the British Army, including prisoners, on all fronts had been approximately 100,000; those of the Dominions troops 20,000, *viz.* 13,000 Australians, 6,000 New Zealanders and 600 South Africans; of Indian troops 7,000; and of African native troops fewer than 500.

CIVILIAN CASUALTIES.—Figures of British civilian air-raid casualties since the compilation of monthly statistics are as follows :—

| | *Killed.* | *Injured and detained in hospital.* | *Total serious casualties.* |
|---|---|---|---|
| September, 1940 ... | 6,954 | 10,615 | 17,569 |
| October, 1940 ... ... | 6,334 | 8,695 | 15,029 |
| November, 1940 ... | 4,588 | 6,202 | 10,790 |
| December, 1940 ... | 3,793 | 5,044 | 8,837 |
| January, 1941 ... | 1,550 | 2,021 | 3,571 |
| February, 1941 ... | 793 | 1,068 | 1,861 |
| March, 1941 ... ... | 4,298 | 4,794 | 9,092 |
| April, 1941 ... ... | 6,131 | 6,900 | 13,031 |
| May, 1941 ... ... | 5,520 | 5,207 | 10,727 |
| June, 1941 ... ... | 406 | 461 | 867 |
| July, 1941 ... ... | 501 | 447 | 948 |
| August, 1941 ... ... | 169 | 136 | 305 |
| September, 1941 ... | 217 | 269 | 486 |

The figures vary in some instances from those previously published because of the receipt of amended reports, including those of the subsequent deaths of persons originally included as injured.

## CANADA

INCREASE IN MILITARY STRENGTH.—The Minister for Defence announced on 8th August that authority had been given for the mobilization of the 6th Division of the Canadian Active Service Force. Canadian troops oversea comprised the 1st, 2nd and 3rd Divisions and the Army Tank Brigade. The 4th Division was mobilized and under training in Canada, as also was the Armoured Division, which was now named the 5th (Armoured) Division.

VISITS OF MINISTERS.—Mr. Mackenzie King, Prime Minister for Canada, on 23rd August, visited Canadian troops in the Aldershot area.

Colonel J. L. Ralston, Canadian Minister of National Defence, accompanied by the Canadian Chief of General Staff, Major-General H. D. G. Crerar, D.S.O., arrived in London on 13th October.

PRESENTATION OF COLOURS.—As stated on page 820, the Queen on 24th October presented new Colours to the Saskatoon Light Infantry. The Colours are a gift from the City of Saskatoon. After the ceremony the Queen said that she knew the Saskatoon Light Infantry would carry on the traditions of the regiment, which went back to the days when, as the fifth battalion of the Canadian Expeditionary Force, it played its gallant part in the last War.

## AUSTRALIA

COMMANDER-IN-CHIEF.—On 4th August it was reported from Melbourne that Major-General Sir Iven Mackay, commanding an A.I.F. Division, had been appointed to the new post of Commander-in-Chief of the Army in Australia. The War Cabinet had stipulated that whoever was appointed should have had service and experience in the present war. General Mackay will have the same rank as the Chief of the General Staff, Lieutenant-General Sturdee.

In announcing the appointment, Mr. Menzies, the Prime Minister, said it would ensure a single control of military operations and defensive measures in Australia, relieving the heavy pressure on General Sturdee, who would be able to concentrate on administrative work while General Mackay devoted himself personally to the inspection, training and preparation of the Army in Australia. He would be superior to the District Commandants and subordinate to the Military Board, which remained the authority advising the Minister for the Army.

CASUALTIES.—It was officially announced on 4th August that up to that date the total casualties in the Australian Imperial Force were :—Killed, 1,194 ; wounded and missing, 11,345.

MAN POWER.—On 11th August the Department of Information at Canberra issued figures showing that 600,000 Australians were under arms or ready for immediate mobilization. Of these a total of 428,000 were in the Australian Imperial Force, the Militia and the Volunteer Defence Corps. There were 200,000 men in the A.I.F., 124,000 in the Royal Australian Air Force, and 20,000 in the Royal Australian Navy. The number of workers in the war industries was estimated at 150,000. Over 30,000 men in Australia attain military age each year.

WAR OUTPUT.—On 11th September the *Times* correspondent reported from Canberra that the British Supply Mission, which visited 87 munition and machine-tool factories, had issued a report expressing the firm belief that Australia will deliver the goods, and urging the United Kingdom Government not to hesitate to sanction expenditure through doubt of this.

Pointing out that the Australian public and even munition workers themselves appear not to appreciate the extent and importance of their work, the report emphasizes that the number of troops in this war is not the prime factor, but the quality and quantity of the latest forms of armament. Far more than any previous war, this is a mechanical war and an engineers' war. The mission expresses the opinion that Australia is approaching its maximum possible output of munitions in view of its supplies of labour, machinery and raw materials, and suggests that before new forms of production are undertaken the authorities should consider whether these can be grafted on to the industrial structure successfully or only by interrupting production which is already proceeding satisfactorily.

The opinion is expressed in the report that the excessive overtime worked in many shops is adversely affecting the nerves of the workers, making them more easily affected by the suggestions of agitators, and thus contributing to industrial unrest. The workmen are uniformly excellent, intelligent and adaptable ; and unrest does not truly reflect their spirit. The possibilities of the production of armaments and war supplies in Australia far exceed those of any other country in the Eastern Group, and the speed with which the manufacturing programmes have been brought to fruition is astonishing.

The leader of the mission, Sir Alexander Roger, in a separate report, praises the initiative and resource of the Australian manufacturers, and cites many instances of splendid achievement. He urges the need of a closer relationship between design, which is the Army's responsibility, and production, which is in the hands of the engineers. He points out that men are still engaged in Australia on work within the capability of women and which is actually being done by women in the United Kingdom. The war effort, grafted on to an engineering industry which was not large by European standards, had been expanded owing to the

foresight shown several years ago, the adaptability of labour and the courage of the promoters of the schemes.

Mr. McBride, Minister of Munitions, has announced that Australia is now fully producing a 25-pounder howitzer. Owing to the close co-operation between the Government and private factories, production of the gun has taken only 12 months, compared with from 15 to 18 months by civil industry in the United Kingdom. The production involved the manufacture of many special purpose machine tools. All auxiliary equipment, including dial sights and other optical munitions, were being produced in Australia; also complete rounds of ammunition.

## NEW ZEALAND

THE WAR EFFORT.—A statement issued on 9th September by the New Zealand High Commissioner in London stated that 35,000 New Zealand troops were serving oversea, and part of the forces had suffered comparatively heavy casualties in Greece and Crete. Over 20,000 men and 10,000 women were participating in the Dominion's war effort, half of the men being either on active service or in training for service oversea; 100,000 men were in the Home Guard. The Dominion was making its own small arms ammunition, as well as Bren-gun carriers and tractors.

VICTORIA CROSS.—The Victoria Cross has been awarded to three members of the New Zealand Military Forces (see page 821).

## INDIA

CASUALTIES.—It was reported from Simla on 7th August that Indian Army casualties in Africa for the period December, 1940—8th July, 1941, totalled 759 killed, 4,267 wounded, 1,261 missing and 40 prisoners of war.

WAR STRENGTH.—In a broadcast on 13th August General Sir Archibald Wavell, the Commander-in-Chief, announced that nearly 750,000 Indians were under arms, that recruits were flowing in fast, and that they could be provided for, while modern equipment and weapons on a big enough scale were now coming both from India's factories and from oversea.

At the end of September it was reported from Simla that recruitment for all arms of the Indian Army was attaining record figures, and that the monthly rate was approaching 50,000.

D.S.O. FOR INDIAN COMMISSIONED OFFICER.—Major Raj Kumar Shri Rajendrasinhji, 2nd Royal Lancers, Indian Army, a nephew of the late Jam Sahib of Nawanagar ("Ranji"), has been awarded the D.S.O. and is the first Indian Commissioned Officer ever to receive the honour. The official account of the action which gained this immediate award reads as follows:—

"On April 8th—9th Major Rajendrasinhji brought a detachment of about sixty all ranks out of the engagement at Mekili. Having joined another unit, he immediately organized his force defensively in a wadi, where he remained until nightfall. During the night march he made several lengthy reconnaissances forward alone on foot, and was continually up and down the column helping to extricate vehicles stuck in the sand. During the two actions next day, in which thirty-two prisoners were captured, Major Rajendrasinhji displayed initiative and leadership of the highest order. He led his trucks in action, personally rounding up enemy personnel with his revolver and organizing their disposal among his

troops. His coolness and general demeanour throughout had a noticeable effect on the troops throughout the column, both British and Indian."

INDIAN TERRITORIAL FORCE.—The Indian Territorial Force has virtually ceased to exist—at any rate for the duration of the war. Over 75 per cent. of the Territorials volunteered for full service with the armed forces; others have volunteered for service limited to India in garrison companies, as guards for prisoners of war, and so forth. The enrolment of the Territorials under their new obligations opened on 15th September. As a result, a number of new battalions are added to the regular Indian Army.

WAR SUPPLIES.—The *Times* correspondent reported from Simla on 21st September that the Government of India have introduced a comprehensive scheme for the training of supervisory staffs and artisans needed for Indian ordnance factories to meet the demands for war supplies by countries of the Eastern Group. The scheme provides for the training by 1st September next year of more than 1,300 supervisors and 6,000 skilled and semi-skilled artisans in addition to those already training under the existing scheme. The project will cost 25 lakhs of rupees (£187,500) and is being borne by His Majesty's Government.

Through the agency of the Eastern Group Supply Council great strides are now being made in the sixteen British territories in the Eastern Hemisphere in the production of armaments and war supplies. The staffs of workers in ordnance factories in India have increased fourfold since the outbreak of the war. Specially selected staffs from Indian factories have been sent to Britain to study the latest production methods, while other men are receiving systematic training in India to assume posts as works' managers and other special duties in the constantly expanding ordnance factories throughout the country. Schemes recommended by the Chatfield Committee and the Roger Mission are now being implemented, and significant functions undertaken by the Eastern Group Supply Council are rapidly being fulfilled.

## EAST AFRICA

NEW MILITARY COMMAND.—On 26th August the War Office announced that, in view of the virtual termination of operations in East Africa, and to enable the Commander-in-Chief, Middle East, to devote his whole attention to more active theatres, it had been decided to create a new East African Military Command directly under the War Office. The new Command would include all those territories lying between the southern border of the Sudan and the northern border of Southern Rhodesia. Lieut.-General Sir William Platt has been selected to be the General Officer Commanding-in-Chief of the new Command.

On 7th October it was announced that Eritrea would form part of the new East African Command.

## ALLIED FORCES

### FREE FRENCH

Early in August it was announced from General de Gaulle's headquarters that a force of Free French parachute troops had been raised from French units in Britain.

## FOREIGN

### UNITED STATES

ARMY STRENGTH.—At the beginning of August the Secretary of War announced that the Army had reached a strength of 1,506,500 officers and enlisted men or more

than double what it was at the end of January. There were 100,000 officers, and enlisted men number 511,900 in the Regular Army, 282,900 in the National Guard, and 648,500 trainees. In addition to these forces there were 63,200 reserve officers. The health of the Army was stated to be better than at any other time since the present emergency began.

NEW WEAPON.—On 3rd August the *Times* Correspondent reported from New York that the United States Army was preparing to make what the Secretary of War called "one of the most significant changes of weapons that has ever occurred." It was going to provide a new arm, a semi-automatic carbine, in place of the 45-calibre automatic pistol.

Pistols are primarily weapons of defence, and have a range of only about 50 yards; the new carbine, with a range of 300 yards, will be both an offensive and a defensive weapon. It is a 30-calibre gun with a bullet similar to a 38-calibre, but it has much more striking power. Its weight is only 5 lb., in contrast with the weight of the Garand and Springfield rifles, which is 9 lb.

In the infantry all officers below the rank of major, all non-commissioned officers and all those enlisted men who carry a pistol will be supplied with carbines. The new weapon is to have an important place likewise in the cavalry, artillery, engineers, armoured corps, parachute troops and other branches of the Service. In the infantry alone more than 175,000 men will receive the carbine. Each regiment will be equipped with 944 of them, greatly increasing its fighting strength.

Six out of eight in a machine-gun team—all but the gunner and assistant gunner, who carry the gun and its tripod—will carry carbines. This will make it possible for a squad to keep on fighting even if its machine-gun is wrecked.

ARMY MANŒUVRES.—On 30th September the *Times* Correspondent reported that at the conclusion of the most elaborate manœuvres ever held in the United States—a mimic war in Louisiana in which 400,000 men were engaged—the contesting Second and Third Armies had been warmly praised by the Army heads.

The outstanding faults brought out by the manœuvres were deficiencies in the amount of equipment—principally of anti-tank guns, wireless sets for combat vehicles, tanks, lorries, and ammunition—and weaknesses in the training of small units, which are ascribed to faults in the leadership of the officers.

On 6th October the United States First Army, comprising 359,000 officers and men, began manœuvres which were to last till the end of November.

ARMY AIR FORCE.—On 22nd October the Secretary of War, Mr. Stimson, announced a new plan for nearly trebling the existing Army Air Force to 400,000 flying cadets and enlisted men by 30th June, 1942, and if possible to 500,000 after that. Up to now the plan for the Army Air Force has called for the formation of 54 combat groups each composed of several squadrons. The new plan provides for 84 of such groups. Mr. Stimson said that the 54-group undertaking was well under way, but not yet completed.

# AIR NOTES

## ROYAL AIR FORCE

### H.M. The King

The King and Queen visited bomber stations of the R.A.F. on 6th October, and conversed with officers and men who had carried out daylight raids on Germany and occupied countries. Among them were pilots and crews from Australia, Canada, South Africa and New Zealand.

### H.R.H. The Duke of Gloucester

Air Vice-Marshal H.R.H. the Duke of Gloucester, K.G., K.T., K.P., G.C.M.G., G.C.V.O., is promoted to the rank of Air Marshal (17th September, 1941). The Duke was promoted from Major-General to Lieut.-General in the Army on the same date.

### H.R.H. The Duke of Kent

The Duke of Kent arrived in Canada on 29th July for a tour of air training establishments in connection with the Commonwealth Air Training Plan, and returned on 14th September. Both outward and homeward journeys were made in bomber aircraft, the Duke being the first member of the Royal Family to fly the Atlantic. His tour covered some 15,000 miles by air.

It was announced in the *London Gazette* on 30th September that Group Captain H.R.H. the Duke of Kent, K.G., K.T., G.C.M.G., G.C.V.O., assumes the rank of Air Commodore with effect from 28th July, 1941 (having previously relinquished temporarily, at his own request, the rank of Air Vice-Marshal).

### Under-Secretary of State

Captain Harold Balfour, Under-Secretary of State for Air, returned to England on 30th July from a three weeks' tour of air training schools in Canada and the United States. He flew about 20,000 miles, the area covered ranging from the Rockies to Nova Scotia and southwards from Canada to the Gulf of Mexico. Two days were spent in Washington, and he thence flew with General Brett, of the United States Army Air Corps, to Alabama and Florida to see some of the United Kingdom air recruits in training.

In September Captain Balfour proceeded to Moscow as a member of the British Mission to Russia under Lord Beaverbrook. On 17th October the Air Ministry announced that Captain Balfour was on his way to the United States in company with Mr. Harriman, to discuss there certain matters arising from the Moscow conferences, in which both took part.

### Honours and Awards

The Victoria Cross.—It was announced on 22nd July that the King had conferred the Victoria Cross on Acting Wing Commander Hughie Idwal Edwards, D.F.C., of No. 105 Squadron. He is 27 years of age, and the first Australian airman to gain the V.C.

Wing Commander Edwards, although handicapped by a physical disability resulting from a flying accident, has repeatedly displayed gallantry of the highest order in pressing home bombing attacks from very low heights against strongly defended objectives. On 4th July last he led an important attack on the port of Bremen, one of the most heavily defended towns in Germany. This attack had

to be made in daylight, and there were no clouds to afford concealment. During the approach to the German coast several enemy ships were sighted, and Wing Commander Edwards knew that his aircraft would be reported and that the defences would be in a state of preparedness. Undaunted by this misfortune he brought his formation fifty miles overland to the target, flying at a height of little more than 50 ft., passing under high-tension cables, carrying away telegraph wires, and finally passing through a formidable balloon barrage. On reaching Bremen he was met with a hail of fire, all his aircraft being hit and four of them being destroyed. Nevertheless he made a most successful attack and then, with the greatest skill and coolness, withdrew the surviving aircraft without further loss. Throughout the execution of this operation, which he had planned personally with full knowledge of the risks entailed, Wing Commander Edwards displayed the highest possible standard of gallantry and determination.

On 5th August, it was announced that the King had conferred the Victoria Cross on Sergeant James Allen Ward, Royal New Zealand Air Force, of No. 75 (N.Z.) Squadron. On the night of 7th July, when second pilot of a Wellington bomber returning from an attack on Munster, he climbed out on the wing at the risk of his life to attack a fire burning near the starboard engine, thereby enabling the aircraft to get home.

On 18th September, Sergeant Ward was reported missing. He was captain of a Wellington bomber which did not return from a recent attack on Germany.

On 24th September, it was announced that the King had approved a number of awards to officers and airmen, including the following :—

*Appointed C.B.*—Acting Air Marshal R. M. Drummond, D.S.O., O.B.E., M.C. ; Air Vice-Marshals Arthur Coningham, D.S.O., M.C., D.F.C., A.F.C., J. H. D'Albiac, D.S.O., A. C. Maund, C.B.E., D.S.O., and J. H. S. Tyssen, M.C. ; Air Commodore A. D. Cunningham, C.B.E.

*Promoted to C.B.E.*—Acting Air Vice-Marshal H. G. Smart, O.B.E., D.F.C., A.F.C.

*Appointed C.B.E.*—Acting Air Vice-Marshal H. P. Lloyd, M.C., D.F.C. ; Acting Air Commodore L. O. Brown, D.S.C., A.F.C. ; Group Captains C. P. Brown, D.F.C., A. P. Davidson, H. J. F. Hunter, M.C., and F. H. E. Reeve ; Acting Group Captains H. G. Brackley, D.S.O., D.S.C., Reserve of Air Force Officers, and F. Crerar, Auxiliary Air Force ; Brigadier H. C. Daniel, South African Air Force.

ABYSSINIA.—On 18th October, it was announced that the King had given orders for the following appointment in recognition of distinguished service in Abyssinia and Eritrea :—

*C.B.E.*—Acting Air Commodore William Sowrey, D.F.C., A.F.C.

A large number of appointments to the Distinguished Service Order and other awards for gallantry displayed in flying operations against the enemy were also announced at various dates.

### PROMOTIONS

The following Air Commodores have been granted the acting rank of Air Vice-Marshal :—

L. N. Hollinghurst, O.B.E., D.F.C. (1st July, 1941).
A. H. Orlebar, A.F.C. (22nd July, 1941).
G. C. Pirie, M.C., D.F.C. (14th August, 1941).
Alan Lees, D.S.O., A.F.C. (1st September, 1941).

The following temporary or war substantive Group Captains are promoted to the rank of temporary Air Commodore, all to date 15th July, 1941 :—

C. A. Stevens, M.C., G. E. Gibbs, M.C., R. Harrison, D.F.C., A.F.C., A. L. Fiddament, D.F.C., A. C. Collier, C.B.E. (acting Air Vice-Marshal), G. M. Lawson, C.B.E., M.C., S. E. Toomer, D.F.C., W. F. Dickson, D.S.O., O.B.E., A.F.C., V. H. Tait, O.B.E.

A number of promotions to the temporary ranks of Group Captain, Wing Commander and Squadron Leader were announced in the *London Gazette* on 9th September, 1941.

### Retirements

Air Commodore Sir Tom I. Webb-Bowen, K.C.B., C.M.G., reverts to the retired list (7th September, 1941) and resumes with effect from that date the rank of Air Vice-Marshal (seniority 1st July, 1925).

The following retirements were announced in the *London Gazette* on 21st October :—

Air Chief Marshal Sir Hugh C. T. Dowding, G.C.B., G.C.V.O., C.M.G., A.D.C. (1st October, 1941).

Air Vice-Marshal L. A. Pattinson, C.B., D.S.O., M.C., D.F.C. (18th September, 1941).

Air Commodore T. E. B. Howe, C.B.E., A.F.C. (19th August, 1941).

Air Commodore S. W. Smith, O.B.E. (21st September, 1941).

Air Commodore A. A. Walser, M.C., D.F.C. (21st September, 1941).

Group Captain W. J. Y. Guilfoyle, O.B.E., M.C. (and retains rank of Air Commodore), (21st September, 1941).

### Attachment to U.S. Army Air Corps

Official observers from the United States Army Air Corps have been attached to the R.A.F. for periods of duty in recent months. On 24th October, the Air Ministry announced that arrangement had been made for a limited number of R.A.F. officers with special active service experience to be attached for a short period to the U.S. Army Air Corps. The first six R.A.F. officers to be detailed for this duty are :—

Group Captain J. N. Boothman, A.F.C.

Group Captain H. Broadhurst, D.S.O., D.F.C., A.F.C.

Wing Commander J. N. H. Whitworth, D.S.O., D.F.C.

Wing Commander A. G. Malan, D.S.O., D.F.C.

Wing Commander H. I. Edwards, V.C., D.F.C.

Wing Commander R. R. S. Tuck, D.S.O., D.F.C.

### Work of the Bomber Command

An official illustrated account of the work of the R.A.F. Bomber Command from the start of the War until July, 1941, was published on 7th October by the Stationery Office (" Bomber Command," 1s. 6d.).

Replying to a question in Parliament on 23rd July, Sir Archibald Sinclair said that the scope of R.A.F. operations was increasing both by day and night. Night bombing was on a heavy scale and is being steadily and skilfully maintained. By day, we are forcing a reluctant enemy to give battle, and we are inflicting

substantial damage on his factories and communications, on his shipping, and on his fighter force. What is still more important, we have compelled him to maintain large air forces in the West to resist our growing assaults. Bomber Command dropped in May this year more than twice the tonnage of bombs dropped in May last year, and in June they dropped more than half as much again as was dropped in May. As regards air parity with Germany, he declined to be drawn into prophecy, but he gladly assured the questioner that no efforts are being spared to obtain first parity with and then overwhelming superiority over the German Air Force.

### Mediterranean Command

On 21st August it was announced that the following telegram had been sent by the Secretary of State for Air, Sir Archibald Sinclair, to the Air Officer Commanding R.A.F., Mediterranean—Air Vice-Marshal H. P. Lloyd, M.C., D.F.C. :—

" Heartiest congratulations to you and to all ranks of the squadrons operating under your command on the magnificent success of the air operations from Malta. The brilliant defence of the island by the Hurricanes, the audacious attacks of the Beaufighters on enemy air bases, the steady and deadly slogging of the Wellingtons at the enemy's ports, the daring and dexterous reconnaissances of the Marylands, culminating in the tremendous onslaughts of the Blenheims and Fleet Air Arm Swordfish on Axis shipping in the Mediterranean, are watched with immense admiration by your comrades in the Royal Air Force and by your fellow countrymen at home. You are draining the enemy's strength in the Mediterranean. Good luck to you, and good hunting."

Air Vice-Marshal Lloyd replied :—

" All ranks join me in thanking you for your warm and inspiring message of congratulation on our humble effort. The hunting is certainly good, and hounds are in excellent fettle."

### New " Airacobra " Aircraft

It was announced in London early in October that the American " Airacobra " fighter aircraft is now fully operational with the R.A.F. Fighter Command and is being used in operations over enemy-occupied territory. It has a liquid-cooled 12-cylinder Allison engine developing 1,150 horse power. Particulars published from American sources state that it has a speed of over 400 miles an hour, and that its 37-mm. cannon, firing 120 rounds a minute through the air-screw, can stop a medium or light tank ; hence it is known in the United States as " the tank buster."

### Personnel

Marriage Allowances.—Captain Margesson, Secretary of State for War, in a written reply to a Parliamentary question on 9th September, explained a new code of allowances in respect of wives and children of officers, which had been adopted with effect from 1st September. The Secretary of State for Air announced that similar adjustments were being made in the case of the R.A.F.

Advances to Dependants.—To safeguard the wife or widow of an R.A.F. officer, missing or killed on duty, against financial hardship which might be experienced at the time of the casualty occurring, the Air Ministry has authorized immediate advances on account of a special temporary allowance. These temporary allowances continue for three months, by which time the entitlement to a pension has normally been settled. The advance may be made on application by the accountant officer of the R.A.F. unit to which the officer belonged.

EDUCATION OFFICERS.—Graduates with qualifications in mathematics and geography are required by the Air Ministry as Education Officers, to be commissioned in the R.A.F. Volunteer Reserve, for teaching navigation and kindred subjects to the thousands of young men now under training to become air crews. Age limits are from 32 to 50, but men already engaged in full-time teaching are not eligible. Although ranking as officers, these instructors will be on a civilian basis as regards rates of pay and conditions of service. Those not already on the Central Register should apply direct to the Air Ministry (E.S.1), London, W.C.2.

SCHOLARSHIP.—A scholarship at Marlborough College has been founded by Lord Hirst in memory of his grandson, Pilot Officer Hugh Harold Hirst, killed while serving with the R.A.F. It will be awarded annually to the sons (under 14) of officers or ex-officers of the R.A.F., approved by the Director of Personal Services, Air Ministry, and will entitle the holder to a reduction of £50 per annum in the amount of college fees.

### AIR TRAINING CORPS

It was announced on 25th August that the Air Training Corps would in future be organized on a regional basis in England and Wales, with seven regions, each under a Regional Commandant, responsible to the Commandant of the A.T.C. for the administration and training of all local and school units in their regions. The following officers were appointed :—

| | | |
|---|---|---|
| North-East Region | ... | Air Commodore Sydney Smith, O.B.E. |
| North-West Region | ... | Group Captain H. R. Busteed, O.B.E., A.F.C. |
| Midland Region | ... | Wing Commander J. A. C. Wright, A.F.C., T.D., D.L., M.P. |
| Eastern Region | ... | Lieut.-Colonel T. W. C. Carthew, D.S.O., K.C. |
| South-East Region | ... | Squadron Leader C. F. Gordon, O.B.E., M.C., D.F.C. |
| South-West Region | ... | Air Commodore H. P. Smyth-Osbourne, C.M.G., D.L. |
| Wales and Monmouthshire | ... ... | Wing Commander G. B. Bailey, D.F.C. |

The London Boroughs will form a separate district which will be administered direct by A.T.C. Headquarters, Stanmore.

NAVIGATION COURSES.—A.T.C. officers to the number of 250 are to be trained as navigation officers in a three-weeks' special course at the R.A.F. Navigational School. One-half of this number were in training at the end of August, at which date over 1,000 A.T.C. officers had had a week's special training at the R.A.F. Stations.

### CIVILIAN TECHNICAL CORPS

It was announced on 18th September that the Secretary of State for Air had appointed Mr. Donald Gill as Commandant of the Civilian Technical Corps, an organized body of civilian craftsmen in certain skilled trades from the United States of America who had volunteered for service in the United Kingdom or overseas for the maintenance and repair of naval, military and air force equipment.

Mr. Gill, who is 48 years of age, served in the United States Navy during the War of 1914–18, and has since held important business appointments. For many years he has been Secretary to the American Chamber of Commerce in London.

### WOMEN'S AUXILIARY AIR FORCE

The first detachment of Women's Auxiliary Air Force code and cypher officers arrived in the Middle East at the beginning of September, under Wing Officer

Mrs. F. M. Hayes, who has specialized in signals work since 1938. This detachment is the forerunner of a large contingent of officers selected for oversea duties.

Dominion women serving in the W.A.A.F. will in future be entitled to wear the name of their country as an arm badge, in the same way as is done by men serving in the R.A.F.

The experiment of replacing men operators by W.A.A.F. at balloon sites having proved successful, more balloons are to be handed over to women. More women than men are usually required to handle each balloon. Their ability to undertake the work is due to improvements in the balloons themselves and methods of handling.

## AUSTRALIA

Early in August, Air Marshal Richard Williams, D.S.O., was appointed Air Officer Commanding the new Royal Australian Air Force Headquarters in London. The functions of the new office include the inspection and operation of the Empire Air Training Scheme, leave, entertainments, welfare work, promotions, pay and records. Air Commodore W. H. Anderson was posted to the Commonwealth Air Board to succeed Air Marshal Williams as Air Member for Organization and Equipment. Air Marshal Williams arrived in England early in October.

Air Marshal Sir Charles Burnett, Chief of the Australian Air Staff, and Lieut.-General V. A. H. Sturdee, Chief of the Australian General Staff, left Singapore on 28th August to return to Australia after a short visit to Malaya during which they had conferred with the chiefs of the Services and visited Australian air and military units.

On 24th July, Senator Leckie, Minister of Aircraft Production, announced in Melbourne that by the end of October there would be a thousand Australian-made aeroplanes in the air—a major industrial triumph for Australia, which in face of immense difficulties had obtained raw material to replace much lost in transit by enemy action.

On 8th August it was announced in Melbourne that the 200,000th man had volunteered under the Empire Air Training Scheme, and that since May the number of applicants had increased from 200 to 600 a week. Mr. McEwen, Air Minister, stated that Australia would be able further to contribute to the air strength of Malaya while constantly strengthening the home defence forces and fulfilling all her obligations under the Empire scheme.

## CANADA

The Duke of Kent, following his recent return from a tour of the British Commonwealth Air Training Plan in Canada, on 2nd October visited officers and men of the new R.C.A.F. squadron now operational with the Army Co-operation Command. Accompanied by Air Commodore L. F. Stevenson, Air Officer Commanding the R.C.A.F. in Great Britain, and Wing Commander D. M. Smith, Officer Commanding the Squadron, the Duke made a complete tour of the station.

Mr. Mackenzie King, Prime Minister of Canada, during his visit to Britain, on 6th September visited the first all-Canadian R.A.F. fighter station to be established in this country. He saw a demonstration by the Canadians of the speed with which they could take the air on the sounding of the alarm, and inspected a squadron at a night-fighter station where Beaufighters were drawn up.

It was announced in Ottawa on 24th October that Air Vice-Marshal Harold Edwards—Air Member for Personnel at the Royal Canadian Air Force Head-

quarters in Ottawa—would leave shortly for Great Britain to take command of R.C.A.F. operations oversea, in place of Air Commodore L. F. Stevenson, who would return to Canada to become Officer Commanding, Western Air Command, with headquarters at Victoria, British Columbia.

Some thousands of boys between the ages of 15 and 18 have been enrolled in the Air Cadet League of Canada, organized during the summer on a Dominion-wide basis, for preliminary training in aviation. R.C.A.F. officers have been lent to the League's national headquarters at Ottawa and to the six Air Force commands to assist with the Cadet organization and training.

On 30th September, Mr. C. G. Power, Canadian Air Minister, announced that the Commonwealth Air Training Plan is to be extended until the number of schools and aerodromes already constructed is almost doubled. Mr. Power also said that an exclusively French-Canadian squadron would be established oversea under a French-Canadian leader as soon as enough French-speaking personnel had been obtained, and urged French-Canadian youth to enlist in the Royal Canadian Air Force.

## NEW ZEALAND

Mr. Fraser, Prime Minister of New Zealand, on 29th September announced the appointment of Air Commodore R. V. Goddard to succeed Air Commodore H. W. L. Saunders as Chief of Air Staff, New Zealand Air Force. Air Commodore Saunders is returning to Great Britain. High tribute to his valuable work in New Zealand was paid by Mr. Fraser.

The establishment in the United Kingdom of a New Zealand torpedo bomber squadron was announced on 20th August by the Minister of Defence, Mr. Jones. He said that it would undoubtedly add to the magnificent record of New Zealand bomber and fighter squadrons; 118 officers and airmen from the Dominion had already won awards.

A cheque for £5,000 has been received by the R.A.F. Benevolent Fund from the High Commissioner for New Zealand. The sum represents a grant from the National Patriotic Fund of New Zealand.

## SOUTH AFRICA

The South African Air Force in August celebrated its coming of age. Referring to the occasion in a speech on 9th August, Field Marshal Smuts, the Prime Minister, emphasized how the air had become a decisive factor, and that without air superiority the strongest army in the world could make little progress. The success of the East African campaign was largely due to the fact that, though outnumbered by ten to one, quite early the South Africans, with the R.A.F. and the Rhodesians, had gained air superiority. South Africa had started the War with only one squadron and a force of about 1,500 pilots and mechanics. To-day the country had an Air Force of over 2,000 pilots and at least 25,000 men and women. The W.A.A.F.s, numbering 3,000, had made a very strong contribution to the Air Force. South Africa had not yet reached the climax of her achievement.

On 20th August, Air Vice-Marshal Sir Quinton Brand, who as a Flight Lieutenant in 1920 made the first flight from England to the Cape accompanied by Lieut.-General Sir P. van Ryneveldt (then a Wing Commander) broadcast a message to the people of South Africa on the coming of age of the S.A.A.F., in reply to one made by Brigadier Venter from South Africa. After referring to the growth and development of the S.A.A.F., he recalled that their first success in the present campaign (with Junker's 86's, ironically enough) occurred soon after the declaration

of war, when the German ship " Watussi " off Cape Town was intercepted. Later in 1940 the bombing without loss of military objectives in Italian Moyale, on the Kenya-Abyssinia border, was a fitting prelude to the great work which the S.A.A.F. was to do against the Italians in Abyssinia, Eritrea and in the Western Desert, both in independent operations and in collaboration with the R.A.F. One of the most ambitious and successful raids was carried out on 20th August, 1940, when simultaneous offensive reconnaissances were made against all Italian aerodromes within striking distance of Kenya. In the present war to date, 76 South Africans serving in the R.A.F. and S.A.A.F. had received awards. A number had received both the D.S.O. and D.F.C., and at least five had bars to one or other of these decorations.

In August, Field Marshal Smuts visited officers and men of the South African Forces in the Middle East, including the Western Desert.

## INDIA

Pilots of the Mysore Squadron of the Fighter Command have been presented with a badge representing the mightiest bird man has imagined, the Gandabherunda, a two-headed eagle from Indian mythology. The badges are the personal gift of the young Maharaja of Mysore, whose emblem is the Gandabherunda. They were formally presented on 17th September by Captain S. T. Binstead, Mysore Trade Commissioner in London, who read a telegraphic message of greeting from the Maharaja. The State of Mysore provided £100,000 for the cost of the squadron.

## FOREIGN

### FREE FRANCE

On the 26th September the names of the members of the Free French National Committee were announced. This Committee is established under the Presidency of General de Gaulle, and Brigadier General Martial Valin has been appointed National Commissioner for Air.

### GERMANY

The Swedish newspaper *Aftonbladet* reports that foreign military attachés in Berlin estimate the German air troops at 200,000 men. Of these about one-fifth are parachutists and the remaining 160,000 air-borne troops.

The average German glider can carry 10 fully-equipped men, it is stated, and a Ju.52 transport aircraft can carry 25 men and tow two gliders. Therefore 200 Ju.52's could transport an attacking force of 9,000 men. " Allowance must naturally be made for a fair number of casualties in the case of day flights, but these can be reduced considerably if the operation is carried out at night. Camouflage has also reached a high level of efficiency."

In the Swedish paper's opinion the topography of Britain is such that she hardly need fear an invasion from the air, " in spite of the amazing success of air-borne troops in Crete."

### NETHERLANDS

Service aircraft in considerable numbers have recently been delivered and ordered for the Netherlands East Indies. According to a report in *The Aeroplane* about £7,000,000 is to be spent on new flying boats for the naval air arm, and the first of these arrived at Sourabaya on 5th September having been flown from San Diego, California, by a Dutch crew. It was a Consolidated Catalina type.

A fleet of Lockheed Lodestars, adapted for use in transporting parachute troops, have been ordered by the Netherlands East Indies Government; some have

already been delivered and are being used in the training of parachute troops. This type carries 20 men and their equipment, including food and medical supplies.

The Netherlands East Indies Air Force is being supplied with large numbers of single-seat Curtiss Wright CW–21B fighters, which have a maximum speed of 333 m.p.h. A number of NA–40B bombers have also been ordered from the North American Aviation Company and will be flown direct to the East Indies when completed.

The Volunteer Flying Corps at Batavia recently announced the purchase of 40 training aircraft, and this increase of training facilities will greatly assist the expansion of the Air Force.

## SPAIN

Spain's air force, like that of Great Britain, is an independent service with a status equal to that of the Army and Navy. It came into being in 1939 and has the familiar organization of an Air Ministry, Air Minister, Under Secretary for Air, and an Air Staff. Personnel consists of two main branches—the Air Branch proper and the Air Infantry. The latter are for ground services only and the defence of aerodromes, whilst the Air Branch includes both flying personnel and trained ground personnel. Additionally, there are a number of specialist branches of various sorts, including the Parachutists. These last are not very numerous, nor is it reported that they have had very considerable training.

The organization of the Spanish Air Force is based on Regional Commands, rather like that of the R.A.F. of some years ago before " functional " commands were instituted. These are known as the Centre, Straits, Levante, Pyrenees and Atlantic Regions; in addition there are the Balearic, Canaries and West Africa, and the Moroccan zones. Military aerodromes are classified into four groups, two of which are specially for wartime use. There were large numbers of landing grounds at the time of the Civil War, but most of them have now gone out of service.

An Air Academy exists for the training of Air Branch officers, and there is also an academy for the training of Aeronautical Engineers and Assistant Aeronautical Engineers. A Higher School of Aerotechnique provides courses in advanced aeronautical science, whilst pilots, observers and other air crew members get their training in elementary and advanced schools resembling their R.A.F. counterpart.

Spain's military aircraft consist mainly of German and Italian types, together with some Russian machines, left over from the Civil War. None of them is very modern. German bombers included Heinkel 111's, Dornier 17 and Junkers 86, 87, 52, and there are some Italian S.79's and 81's, BR.20's and Ca.310's. Among the fighters are German Me.109's, Heinkels 51 and 112, and Italian CR.32's and G.50's. From Russia they obtained some I.15's and 16's. Spanish military aircraft bear the national colours—red, yellow, red—and a white cross on a black ground on their wings. The fuselage is decorated with a Falange emblem of a yoke and arrows—red in a black circle—and on the rudder is a black cross on a white ground.

Spain's aircraft industry is small, and chiefly turns out foreign types under licence. They are also believed to be constructing a number of prototypes of national design. In the Hispano–Suiza concern—famous for its quality cars in peace days—Spain possesses a factory for the production of both air frames and aero-engines.

# REVIEWS OF BOOKS

## GENERAL

**Hitler's War Machine and the Invasion of Britain.** By Wilhelm Necker. Translated by H. Leigh Farnell. (Lindsay Drummond.) 12s. 6d.

The major portion of this book consists of a detailed description of the equipment, organization, training and tactical methods of the different portions of the German war machine (omitting the navy). A second portion deals with that machine in action, as exemplified in the French campaign. Part III, about 40 pages, discusses the problem of an invasion of Britain. There is a short epilogue on the Balkan operations and the lessons of Crete.

## MILITARY

**A History of the Uniforms of the British Army.** By Cecil C. P. Lawson. Vol. 2, 1714 to 1760. (Peter Davies.) 15s.[1]

The first volume of Mr. Lawson's great work led us to expect much of the second when it should appear, and now that this is to hand it must be admitted that these expectations have been realized. A feast of good things is contained in the 276 pages of the book, including two excellent plates in colour, while the black and white illustrations number no less than 220—Cavalry, Infantry, Artillery, Engineers, Marines, Scots Corps in Foreign Service, Militia, Hon. Artillery Company, Volunteers of 1745—all find a place, and the Hanoverian Army is given some 30 pages—a monumental task which Mr. Lawson has accomplished in a remarkable manner. The period covered by this volume is one in which we are fortunate enough to possess two complete series of pictures of uniforms of the British Army, viz., those of 1742 and 1751; these have been made use of to the fullest extent. As regards officers' uniforms, a magnificent range of paintings and engravings has been requisitioned to provide authentic representations.

Amid so much excellence, there are nevertheless one or two corrections that should be made. The chart of Infantry uniforms of 1742 gives black flaps to the pouches of some regiments which should be buff, and vice versa, and the illustration of a Trooper, 1st Horse, 1757, on page 129, should show the lapels going down to the bottom of the coat. The Grenadier cap bearing the number 49 on the turn-up (page 32) really belongs to the 48th Regiment, the number being changed in 1748. This cap is very interesting, showing as it does that regimental numbers had already begun to appear on these caps, also the worsted lace at the base has a green and yellow mixed stripe, while the lace in the 1742 book has a green figure and a yellow stripe (which again is shown in Morier's Grenadier of 1751). This particular cap, therefore, could only be of the year 1741 when the regiment was raised, which date Mr. Lawson assigns to it in the list of illustrations. From 1740 to 1748 the rank of 48th of the British Line was held by the 5th or Cochrane's Marines. When this was disbanded in 1748 its place was taken by the present 1st Northamptons, which had been raised in January, 1741, and took rank as 59th or 49th, according as the Marine regiments were or were not counted in the Line. This cap makes it clear that the regiment called itself 49th. More important is the need of a transposition of the uniforms of the 8th and 9th Foot in the chart for 1742. Mr. Lawson has followed the Representation Book in this, but the regiments are clearly identifiable from the facings and list of Colonels.

But these are slight blemishes, and Mr. Lawson is to be congratulated on his success in gathering together in one volume the uniform evidences that were scattered abroad, and giving us the fruit of his labours in this beautiful book.

[1] At the time of going to press this volume was still in course of preparation, but will be published very shortly.

**Home Guard Warfare.** By John Langdon-Davies. (George Routledge & Sons.) 2s. 6d.

This book, as the Publishers say, is an " unofficial record of personal opinion based upon experience of modern war in Spain and Finland." It is divided into two parts—first, a lecture which was delivered to many Home Guard Units during the winter of 1940–41, and secondly a condensed collection of notes contributed weekly since October, 1940, to the *Sunday Pictorial*.

Part I makes good reading and must have been still better as a lecture. It is witty, clearly put, and emphasizes cleverly the points the lecturer wished to rub home. Part II is more or less an expansion of Part I; but, as the author says, " it does no harm to say the same thing twice, if one's object is to stimulate people into action."

Mr. Langdon-Davies in his foreword acknowledges the help he has received from high officials in the War Office. The author's views may be summarized as follows :—

(i) The role of the Home Guard is local defence in the locality wherein he resides and with which he is (or should be) well acquainted. This defence may be " static " or " mobile," but it is definitely local.

(ii) The fundamental duty of the Home Guard is to checkmate surprise hostile landings of troops from the air. " We must have trained watchers, observers, scouts, message senders, and men ready and able to deal with anything that may happen."

(iii) Discipline is essential, and a limited amount of drill is necessary to ensure cohesion and co-operation; but there should be no attempt to emulate Regular troops.

(iv) The training of the Home Guard should be largely for guerrilla warfare, and intimately related to the defensive problems of its own area.

## AIR

**So Few.** By David Masters. (Eyre & Spottiswoode.) 6s.

Here is a book describing in glowing terms and much detail some of the heroic actions and outstanding feats of individual members of the Royal Air Force during this war. It is a record of gallantry that should make a strong appeal. An excellent birthday gift for a boy.

**Safety in Flight.** By Assen Jordanoff. (Funk & Wagnalls Co.) 16s. 6d.

Written by an American, this book deals with the study of weather conditions and the practical application of weather knowledge to the problems of safe flying. The subject is dealt with in detail and very thoroughly, and the text is illuminated with many excellent illustrations and diagrams.

# ADDITIONS TO THE LIBRARY

## GENERAL

THUS SPAKE GERMANY. Edited by W. W. Cook and M. F. Potter. 8vo. (George Routledge & Sons, Ltd.) 10s. 6d.

HITLER'S WAR MACHINE AND THE INVASION OF BRITAIN. By Wilhelm Necker. 8vo. (Lindsay Drummond.) 12s. 6d.

THIS BEWILDERING WAR. By Wilhelm Necker. 8vo. (Lindsay Drummond.) 12s. 6d.

TO THE PEOPLE OF BRITAIN AT WAR FROM THE PRIME MINISTER OF AUSTRALIA. By Rt. Hon. R. G. Menzies. 8vo. (Longmans, Green & Co.) 3s. 6d. Presented.

DEFENCE OF THE WESTERN WORLD. By H. W. Baldwin. 8vo. (Hutchinson & Co., Ltd.) 10s. 6d.

BATTLE SHIELD OF THE REPUBLIC. By Major M. Wheeler-Nicholson. 8vo. (Macmillan & Co.) 7s. 6d. Presented.

THE SIXTH QUARTER, JANUARY 1ST–MARCH 31ST, 1941. By P. P. Graves. 8vo. (Hutchinson & Co.) 9s. 6d.

SURVEY OF INTERNATIONAL AFFAIRS, 1938. Vol. I. By A. J. Toynbee. (Oxford University Press.) 28s.

THE MARCH OF THE BARBARIANS. By H. Lambe. (Robert Hale.)

AMERICA CAN WIN. By M. Wheeler-Nicholson. 8vo. (Macmillan & Co.) 7s. 6d. Presented.

THE CAMBRIDGE HISTORY OF POLAND, 1697–1935. Edited by W. F. Reddaway and others. Cr. 8vo. (Cambridge University Press.) 30s.

ARTILLERY OBSERVATION POSTS. By Captain N. D. James. Pamphlet. (A. W. Neston & Co.) 1s. Presented by the Author.

## NAVAL

BRITISH NAVAL POLICY, 1880–1905. By A. J. Marder. Cr. 8vo. (Putnam & Co.) 31s. 6d.

THE FLEET TO-DAY. By Kendall Banning. 8vo. (Funk & Wagnall's Company, New York.) $2.50. Presented.

## MILITARY

THE SOVIET–FINNISH CAMPAIGN. By Major A. S. Hooper. Pamphlet. 3d Presented.

HOME GUARD WARFARE. By J. Langdon-Davies. 8vo. (G. Routledge & Sons, Ltd.) 2s. 6d. Presented.

ARMY DISTRICT COURT MARTIAL PROCEDURE AND NOTES ON FIELD GENERAL COURT MARTIAL PROCEDURE. By Major H. M. Shurlock. Fo. (Gale & Polden, Ltd.) 7s. 6d. Presented.

SECTION TRAINING EXERCISES. By Major C. R. Ward. 8vo. (Gale & Polden, Ltd.) 1s. 6d. Presented by the Author.

BATTLE DRESS. By Gun Buster. 8vo. (Hodder & Stoughton.) 5s.

## AIR

SAFETY IN FLIGHT. By A. Jordanoff. Cr. 8vo. (Funk & Wagnall's Co., New York.) $3.00. Presented.

WAR IN THE AIR. By D. Garnett. 8vo. (Chatto & Windus.) 7s. 6d.

"SO FEW." The Immortal Record of the Royal Air Force. By D. Masters. 8vo. (Eyre & Spottiswoode, Ltd.) 6s. Presented.

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# INDEX

FEBRUARY TO NOVEMBER, 1941


*Page*

AIR Battles for Britain, The. (May, 1941) ... ... ... ... 213
AIR Force of the Soviet Union, The. (August, 1941) ... ... 481
AIR Forces, The Influence of on the Course of the War. (February, 1941) ... ... ... ... ... ... ... ... 44
AIR Objectives, Some. (May, 1941) ... ... ... ... 272
AIRCRAFT Production in the United States. (E. Speyer. November, 1941) ... ... ... ... ... ... 674
AIRCRAFT Production, Progress in. (May, 1941) ... ... ... 287
AMERICAN Shipping Effort, The. (November, 1941) ... ... 682
ANTI-AIRCRAFT Batteries, The Toll of Our. (February, 1941) ... 55
ARMY and Air Force Co-operation. (February, 1941) ... ... 54
ARMY of the Soviet Union, The. (August, 1941) ... ... ... 479
ARMY Units and Mechanical Efficiency. (Captain R. H. Bright, *p.a.c.*, R.T.R. August, 1941)... ... ... ... ... 490
ARMY Welfare and Education. (Major-General H. Willans, C.B.E., D.S.O., M.C., T.D. May, 1941) ... ... ... 246
AUSTRALIA and Japan. (Donald Cowie. November, 1941) ... 687

BALTIC as a Theatre of War, The. The Campaign of 1854. (Lieutenant R. F. Colvile, R.N. February, 1941) ... 72
BATTLE of the Atlantic, The. (R. H. Gibson. May, 1941) ... 231
BRITISH Decorations. (August, 1941) ... ... ... ... 485
BRITISH Offensive, The. (International Situation. May, 1941) ... 309

CAMPAIGNING in Arctic Russia. (Major F. Evans, M.B.E., R.A.M.C. May, 1941) ... ... ... ... ... 290
CANADA'S War Effort. (November, 1941) ... ... ... ... 643
CENTURY of the China Station, A. (Frank C. Bowen. February, 1941) ... ... ... ... ... ... ... ... 57
CHINA Station, A Century of the. (February, 1941) ... ... 57
CORPS of the White Cockade, The. (Lieut.-Colonel M. E. S. Laws, M.C., R.A. February, 1941) ... ... ... ... 81

*Page*

DECORATIONS, British. (August, 1941) ... ... ... ... 485
DEFENSIVE Tactics, Military. (August, 1941) ... ... ... 447
DIARY of the War, see Miscellaneous.

EVACUATIONS in 1915. (Lieut.-Colonel H. E. Crocker, C.M.G., D.S.O. August, 1941) ... ... ... ... ... 492

GERMAN Politico Military Strategy. (D. M. Cole. August, 1941) 423
GERMANY, The Two Faces of. (November, 1941) ... ... 646
GERMANY'S Oil Supplies. (August, 1941) ... ... ... ... 437

HIGHER Commander, The. General Wavell's Views. (February, 1941) ... ... ... ... ... ... ... ... 1
HITLER'S Attempt to Foment Anglo-French Dissension. (International Situation. February, 1941) ... ... ... 100
HYGIENE and the March. (Major Frederic Evans, M.B.E., R.A.M.C. November, 1941) ... ... ... ... ... 694

INDIAN Army of To-day, The. (Brigadier H. M. Burrows, C.I.E., late I.A. August, 1941) ... ... ... ... ... 467
INDUSTRIAL Population of Great Britain and the War, The. (Captain R. H. Bright, *p.a.c.*, R.T.R. November, 1941) ... 657
INFLUENCE of Air Forces on the Course of the War, The. (Captain Norman Macmillan, M.C., A.F.C. February, 1941) ... 44
ITALIAN Failures, The. (Major-General H. Rowan-Robinson, C.B., C.M.G., D.S.O. May, 1941) ... ... ... ... 304

JAPANESE Threat, The. (International Situation. August, 1941) 499

LEASE and Lend Act, The. (International Situation. May, 1941) 311
LESSONS of the Last War, Some. (Brigadier-General W. D. Croft, C.B., C.M.G., D.S.O. February, 1941) ... ... 66

MAINTENANCE of Fighting and M.T. Vehicles in Wartime, The. (Captain R. H. Bright, *p.a.c.*, R.T.R. May, 1941) ... 274
MECHANICAL Efficiency, Army Units and. (August, 1941) ... 490
MILITARY Defensive Tactics. (Captain W. R. Young, M.C., R.A. August, 1941) ... ... ... ... ... ... ... 447
MOTOR Torpedo Boats. (August, 1941) ... ... ... ... 465

N.A.A.F.I. Entertainments Branch, The Work of the. (February, 1941) ... ... ... ... ... ... ... ... 88
NAVICERT and Pericert. (August, 1941) ... ... ... ... 440
NAVIES of the Chief Sea Powers, The. (Maurice Prendergast. May, 1941) ... ... ... ... ... ... ... 277

*Page*

NAVY of the Soviet Union, The. (Francis E. McMurtrie, A.I.N.A. August, 1941) ... ... ... ... ... ... ... 473
NEW Ally, The. (International Situation. August, 1941) ... 497

OCEAN Air Transport ... ... ... ... ... ... ... 703
OVERSEAS Shipyard Resources, Our. (Donald Cowie) ... ... 237

PROGRESS in Aircraft Production. (May, 1941) ... ... ... 287

ROYAL Air Force, Welfare in the. (August, 1941) ... ... 459
ROYAL Navy, Welfare in the. (November, 1941) ... ... ... 724

SEA Power after the Last War. A Review of the American Outlook. (Admiral Sir Herbert Richmond, K.C.B., D.C.L. August, 1941) ... ... ... ... ... ... ... 430
SINGAPORE of To-day. (August, 1941) ... ... ... ... 456
SOVIET Union. (August, 1941)—
The Navy of the ... ... ... ... ... ... 473
The Army of the ... ... ... ... ... ... 479
The Air Force of the ... ... ... ... ... ... 481
STOCKTAKING. (International Situation. February, 1941) ... 96
SUGGESTIONS for Unit Training. (Major M. P. Huthwaite. May, 1941) ... ... ... ... ... ... ... 261

TACTICS of the Blitzkrieg, The. (Major M. P. Huthwaite. February, 1941) ... ... ... ... ... ... 34
TOLL of Our Anti-Aircraft Batteries, The. (February, 1941) ... 55
TRENCH Gascoigne Prize Essay, 1940. (Major Frederick Evans, M.B.E., R.A.M.C. February, 1941) ... ... ... 15
Two Faces of Germany, The. (Lieut.-Colonel H. G. de Watteville, C.B.E., late R.A. November, 1941) ... ... ... 646

UNIT Training, Suggestions for. (May, 1941) ... ... ... 261
U.S. Naval Recruitment and Training. (E. P. Montgomery. November, 1941) ... ... ... ... ... ... 667

WAR as it used to be. (Lieut.-Colonel H. E. Crocker, C.M.G., D.S.O. May, 1941) ... ... ... ... ... ... 299
WAR on Two Fronts. (International Situation. November, 1941) ... ... ... ... ... ... ... ... 730
WELFARE in the Royal Air Force. (Group Captain F. C. Halahan, C.M.G., C.B.E., M.V.O., D.S.O. August, 1941) ... ... 459
WELFARE in the Royal Navy. (Captain W. R. Blacklock, D.S.O., R.N. November, 1941) ... ... ... ... ... 724
WORK of the N.A.A.F.I. Entertainments Branch, The. (Claude F. Luke. February, 1941) ... ... ... ... ... 88

Page

## AUTHORS

BLACKLOCK, Captain W. R., D.S.O., R.N. (Welfare in the Royal Navy. November, 1941) ... ... ... ... ... 724
BOWEN, Frank C. (A Century of the China Station. February, 1941) ... ... ... ... ... ... ... ... 57
BRIGHT, Captain R. H., *p.a.c.*, R.T.R. (Army Units and Mechanical Efficiency. August, 1941) ... ... ... 490
BRIGHT, Captain R. H., *p.a.c.*, R.T.R. (The Industrial Population of Great Britain and the War. November, 1941) ... ... 657
BRIGHT, Captain R. H., *p.a.c.*, R.T.R. (The Maintenance of Fighting and M.T. Vehicles in Wartime. May, 1941) ... 274
BURROWS, Brigadier H. M., C.I.E., late I.A. (The Indian Army of To-day. August, 1941) ... ... ... ... ... 467

COLE, D. M. (German Politico-Military Strategy. August, 1941) 423
COLVILE, Lieutenant R. F., R.N. (The Baltic as a Theatre of War. The Campaign of 1854. February, 1941) ... ... ... 72
COWIE, Donald. (Australia and Japan. November, 1941) ... 687
COWIE, Donald. (Our Overseas Shipyard Resources) ... ... 237
CROCKER, Lieut.-Colonel H. E., C.M.G., D.S.O. (Evacuations in 1915. August, 1941) ... ... ... ... ... ... 492
CROCKER, Lieut.-Colonel H. E., C.M.G., D.S.O. (War as it used to be. May, 1941) ... ... ... ... ... ... 299
CROFT, Brigadier-General W. D., C.B., C.M.G., D.S.O. (Some Lessons of the Last War. February, 1941)... ... ... 66

EVANS, Major F., M.B.E., R.A.M.C. (Campaigning in Arctic Russia. May, 1941) ... ... ... ... ... ... 290
EVANS, Major F., M.B.E., R.A.M.C. (Hygiene and the March. November, 1941) ... ... ... ... ... ... 694
EVANS, Major F., M.B.E., R.A.M.C. (Trench Gascoigne Prize Essay, 1940. February, 1941) ... ... ... ... 15

GIBSON, R. H. (The Battle of the Atlantic. May, 1941) ... ... 231

HALAHAN, Group Captain F. C., C.M.G., C.B.E., M.V.O., D.S.O. (Welfare in the Royal Air Force. August, 1941) ... ... 459
HUTHWAITE, Major M. P. (Suggestions for Unit Training. May, 1941) ... ... ... ... ... ... ... ... 261
HUTHWAITE, Major M. P. (The Tactics of the Blitzkrieg. February, 1941)... ... ... ... ... ... ... 34

Page

LAWS, Lieut.-Colonel M. E. S., M.C., R.A. (The Corps of the White Cockade. February, 1941) ... ... ... ... 81

LUKE, Claude F. (The Work of the N.A.A.F.I. Entertainments Branch. February, 1941) ... ... ... ... ... 88

MACMILLAN, Captain Norman. (The Influence of Air Forces on the Course of the War. February, 1941) ... ... ... 44

McMURTRIE, Francis E., A.I.N.A. (The Navy of the Soviet Union. August, 1941)... ... ... ... ... ... 473

MONTGOMERY, E. P. (U.S. Naval Recruitment and Training. November, 1941) ... ... ... ... ... ... 667

PRENDERGAST, Maurice. (The Navies of the Chief Sea Powers. May, 1941) ... ... ... ... ... ... ... 277

RICHMOND, Admiral Sir Herbert, K.C.B., D.C.L. (Sea Power after the last War. A Review of the American Outlook) ... 430

ROWAN-ROBINSON, Major-General H., C.B., C.M.G., D.S.O. (The Italian Failures. May, 1941) ... ... ... ... 304

SPEYER, E. (Aircraft Production in the United States. November, 1941) ... ... ... ... ... ... ... ... 674

WATTEVILLE, Lieut.-Colonel H. G. de, C.B.E., late R.A. (The Two Faces of Germany. November, 1941) ... ... 646

WILLANS, Major-General H., C.B.E., D.S.O., M.C., T.D. (Army Welfare and Education. May, 1941) ... ... ... 246

YOUNG, Captain W. R., M.C., R.A. (Military Defensive Tactics. August, 1941) ... ... ... ... ... ... ... 447

## FRONTISPIECES

The Sinews of War. A Convoy passing the Dover Straits ... ... ... ... ... ... *facing page* 1

Our Air Offensive. The "Liberator" Long-Range Bomber supplied from the United States ... „ „ 213

Descente en Angleterre ... ... ... ... „ „ 423

H.M. The King inspecting the 3rd Canadian Division „ „ 643

## PLATES

Our Military Offensive—Infantry Tank, Mark II ... *facing page* 274

Our Naval Offensive—H.M.S. "Prince of Wales" ... „ „ 275

A 70-ft. Motor Torpedo Boat ... ... ... ... „ „ 465

*Page*

## MISCELLANEOUS


| | |
|---|---|
| Diary of the War ... ... ... ... ... | 103, 313, 502, 733 |
| Correspondence ... ... ... ... ... ... | 600, 807 |
| General Service Notes ... ... ... ... ... | 602, 811 |
| Navy Notes ... ... ... ... ... ... | 184, 388, 604, 812 |
| Army Notes ... ... ... ... ... ... | 193, 397, 611, 820 |
| Air Notes ... ... ... ... ... ... | 200, 409, 628, 833 |
| Reviews of Books ... ... ... ... ... | 208, 417, 638, 842 |
| Additions to the Library ... ... ... | 212, 422, 641, 844 |
| The Anniversary Meeting ... ... ... ... ... | ix |

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